DSR-4550 Commercial Integrated Receiver/ Decoder Operator Guide

Document No.: 540038-001

MOTOROLA

WARNING

The unauthorized modification of any decoder and the sale and use of any such decoder is prohibited by law. Any such modification or alteration of this product or any unauthorized reception of television programming could subject the user and seller and party modifying the decoder to fines, imprisonment, and civil damages.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful, interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. This digital apparatus does not exceed the Class A limits of radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Repairs and Assistance

For assistance on return or repair see "Calling for Repairs" on page 68.

Note to CATV System Installer

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Warning

To prevent electrical shock, do not use the decoder electrical power plug (polarized) with an extension cord, receptacle, or other outlet unless the blades can be fully inserted to prevent blade exposure. The mains disconnect device is the appliance plug and it shall remain readily accessible and operable.

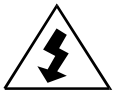
The lithium battery is not field-replaceable for the life of the product.

General Instrument Corporation doing business as
Motorola Mobility, Inc.
6450 Sequence Dr.
San Diego, CA 92121

DOCUMENT No: 540038-001 REV F 2/24/11

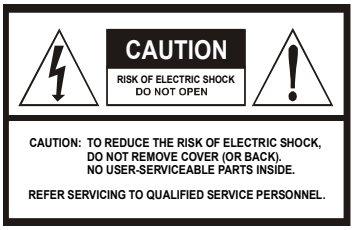
OPERATION PRECAUTIONS

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.



The lightning flash with the arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the product.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

ATTENTION

This commercial unit is intended for the decoding of DigiCipher® II television signals for commercial use. Possession of this device does not enable or entitle the possessor to receive DigiCipher II television signals. Contact program providers to obtain appropriate authorizations.

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Dolby Digital is a registered trademark of Dolby Laboratories. Dolby Digital is manufactured under license from Dolby Laboratories.

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Important Safety Instructions

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Use only attachments and accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- This apparatus shall not be exposed to dripping or splashing. No objects filled with liquids, such as vases, shall be placed on the apparatus.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as when the power-supply cord or plug is damaged, liquid has been spilled, or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Damage Requiring Service

Unplug this equipment from the power source, and contact a qualified service provider if any of the following situations occurs:

- If the power supply cord or plug is damaged.
- If liquid or objects have fallen into the unit.
- If the unit became wet from rain or water.
- If the unit was dropped or damaged.
- If the unit's performance changes.

Service

Do not try to service this product yourself. If you open or remove the cover, you may be exposed to dangerous voltage or other hazards and may void the unit's warranty. Contact a qualified service provider for all service.

ADVERTENCIA

La modificación no autorizada de cualquier decodificador, y la venta y el uso del mismo está prohibida por ley. Cualquier modificación o alteración de este producto o cualquier recepción no autorizada de programación de televisión puede someter al usuario y al vendedor, y a la parte que modifica el decodificador a multas, prisión y daños civiles.

NOTA: Este equipo se ha probado y se ha demostrado que cumple con los límites para un dispositivo digital clase A, según la parte 15 de las normas de la FCC. Estos límites están diseñados para ofrecer protección adecuada contra interferencia dañina cuando el equipo se utiliza en un entorno comercial. Este equipo genera, usa y puede irradiar energía de radiofrecuencia y, si no se instala y usa de acuerdo con el manual de instrucciones, puede causar interferencia dañina a las comunicaciones por radio. Es posible que el funcionamiento de este equipo en un área residencial cause interferencia dañina, en cuyo caso el usuario deberá corregir la interferencia y asumir el costo correspondiente. Este aparato digital no supera los límites de la clase A de emisiones de ruido de radio del aparato digital establecido en las Normas de interferencia de radio del Departamento canadiense de comunicaciones.

Reparación y asistencia

Para recibir ayuda sobre devolución o reparación, consulte “Calling for Repairs” en la página 67.

Nota para el instalador del sistema CATV

Este recordatorio es para que el instalador del sistema CATV considere el Artículo 820-40 del Código eléctrico nacional (NEC) que entrega pautas para una correcta conexión a tierra y, en especial, especifica que la conexión a tierra del cable debe conectarse al sistema de conexión a tierra del edificio, lo más cerca posible del punto de entrada del cable.

Advertencia

Para evitar descargas eléctricas, no use el enchufe eléctrico del decodificador (polarizado) con un cable de extensión, receptáculo u otra salida a menos que las aspas queden completamente insertadas para evitar la exposición de las aspas. El dispositivo de desconexión de la red de suministro es el enchufe del aparato y debe ser de fácil acceso y estar en funcionamiento.

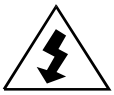
La batería de litio no se reemplaza en la instalación para mantener la vida útil del producto.

General Instrument Corporation comercializa como
Motorola Mobility, Inc.
6450 Sequence Dr.
San Diego, CA 92121

N°. DE DOCUMENTO: 540038-001 REV F, 2/24/11

PRECAUCIONES DE OPERACIÓN

ADVERTENCIA: PARA EVITAR RIESGOS DE INCENDIOS O DESCARGA ELÉCTRICA, NO EXPONGA ESTE EQUIPO A LA LLUVIA O LA HUMEDAD.



El símbolo del rayo con cabeza de flecha, dentro de un triángulo equilátero, está diseñado para alertar al usuario la presencia de "voltaje peligroso" sin aislamiento dentro del perímetro del producto que puede tener la magnitud suficiente para ser un riesgo de descarga eléctrica para las personas.

El signo de exclamación dentro de un triángulo equilátero está diseñado para alertar al usuario la presencia de importantes instrucciones de funcionamiento y mantenimiento (servicio) en la literatura que acompaña al producto.

PRECAUCIÓN
RIESGO DE DESCARGA ELÉCTRICA. NO ABRIR.
PRECAUCIÓN: PARA REDUCIR EL RIESGO DE DESCARGA ELÉCTRICA, NO RETIRE LA CUBIERTA (O LA TAPA). EN EL INTERIOR NO H AY PIEZAS QUE SEAN PARA USO DEL USUARIO.
SOLICITE ASISTENCIA TÉCNICA AL PERSONAL DE SERVICIO CALIFICADO.

ATENCIÓN

Esta unidad comercial está diseñada para decodificar señales de televisión DigiCipher® II para uso comercial. La posesión de este dispositivo no permite ni autoriza al dueño a recibir señales de televisión DigiCipher II. Comuníquese con los proveedores de programa para obtener las autorizaciones correspondientes.

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Instrucciones de seguridad importantes

- Lea estas instrucciones.
- Guarde estas instrucciones.
- Considere todas las instrucciones.
- Siga todas las instrucciones.
- No use este aparato cerca del agua.
- Limpie sólo con un paño seco.
- No bloquee las aberturas de ventilación. Instale siguiendo las instrucciones del fabricante.
- No instale cerca de fuentes de calor como radiadores, rejillas de aire caliente, cocinas u otros aparatos que produzcan calor (incluidos amplificadores).
- No impida el propósito de seguridad del enchufe polarizado o con conexión a tierra. Un enchufe polarizado tiene dos aspas, una más ancha que la otra. Un enchufe de conexión a tierra tiene dos aspas y una tercera punta con conexión a tierra. El aspa ancha o la tercera punta está diseñada para su seguridad. Si el enchufe incluido no se ajusta a la salida, pida al electricista el repuesto de la salida obsoleta.
- Todos los servicios de mantenimiento deben realizarlos personal calificado. El servicio de mantenimiento se requiere cuando el aparato tiene algún daño, por ejemplo cuando el cable de alimentación o enchufe está dañado, se ha derramado líquido o el aparato ha sido golpeado por otros objetos, cuando se ha expuesto a lluvia o humedad, no funciona normalmente o se ha caído.
- Proteja el cable de alimentación para evitar pisarlo o que quede apretado, especialmente en los enchufes y tomas de corriente, y revise el punto de salida del aparato.
- Use exclusivamente los accesorios especificados por el fabricante.
- Desconecte el aparato durante tormentas eléctricas o cuando no se use durante un tiempo prolongado.

Daños que requieren servicio de mantenimiento

Desenchufe este equipo de la fuente de alimentación y comuníquese con un proveedor de servicio calificado si se presenta alguna de las siguientes situaciones:

- Si el cable de alimentación o enchufe está dañado.
- Si sobre la unidad ha caído líquido o algún objeto.
- Si la unidad se moja por la lluvia o el agua.
- Si la unidad se golpeó o dañó.
- Si se altera el funcionamiento de la unidad.

Servicio

No intente reparar este producto usted mismo. Si abre o retira la cubierta, es posible que se exponga a voltaje peligroso u otros daños, y anule la garantía de la unidad. Para todo tipo de mantenimiento, comuníquese con un proveedor de servicio calificado.

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Introducing the DSR-4550

The Motorola Mobility DSR-4550 is a commercial Integrated Receiver Decoder (IRD) designed for cable operators and other commercial satellite operations. After properly setting up the DSR-4550, it can receive authorization and control information from the satellite operator.

Key Features

- A variable front-end allows the DSR-4550 to be used in either full or partial transponder mode.
- Manual tuning for either ASI input or eight L-band inputs (ports).
- Demodulates DigiCipher® II signals.
- Digital Video Broadcast (DVB) data formats compliant with MPEG-2 standard.
- 8PSK (Phase Shift Keying) modulation with turbocodes for matched transponders.
- Operational modes include: DCII-MAN, DVB-MAN, and 8PSK.
- SDI Output with two channels of embedded audio.
- Two AES/EBU digital audio outputs.
- The user is able to select an input L-band frequency of 950 to 2150 MHz. The user can select any of the following code rates: 5/11, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, and 7/8.
- Support for GigE Digital Storage Medium Command and Control (DSMCC)
- The DSR-4550 is capable of storing multiple Virtual Channel Tables (VCTs) and Network Information Tables (NITs). One VCT may be selected at a time.
- Once the IRD has acquired an MPEG signal, the user can select a program from a list of programs as defined in the Program Association Table (PAT).

- Two video outputs. One for primary video and one for OSD video. Outputs either 525-line NTSC/PAL M or 625-line PAL video formats, automatically matching based on the programmer's input format. (No conversion is done between 525-line and 625-line video.)
- VBI reinsertion on lines 10-22 supports data services such as North American Broadcast Teletext, SID/AMOL I and II, and Closed Caption.
- Bypass video and audio inputs enable connections of analog signals to pass through the unit and switch on or off when an alarm is triggered.
- Audio output consists of two stereo pairs. When the programmer provides multiple audio choices, the audio pair can be selected. Programmers can tag audio channels with a language so the receiver selects the audio material based on the specified language.
- MPEG-2 video and Dolby® Digital/MPEG-2 Layer I audio are employed for video decode/decompression and audio compression respectively.
- Asynchronous Serial Interface (ASI) and Gig-E output for digital transport stream output. Both can be configured to display a consistent PID mapping, regardless of service input.
- Support for GigE Digital Storage Medium Command and Control (DSMCC)
- ASI input that decrypts and decodes the selected service.
- Ethernet Port for SNMP control and/or IP data pass through.
- DTMF output and relay control of tape machines and other ad insertion equipment.
- Four Form-C relays used for fault alarm indication or uplink control.
- Memory to recall the operating configuration when power sags or is removed.
- Security features include Motorola Mobility DigiCipher II security technology. The DSR-4550 does not require a TVPass® card to operate with security. In the unlikely event that the code is broken, security can be renewed by inserting a card with a new code into the receiver. Programmers may also utilize fingerprinting techniques to aid in piracy control.
- A two line, 40-character front panel with a time-out backlit Liquid Crystal Display (LCD).
- The DigiCipher II system allows for retune events in which a programmer sends over-the-satellite messages to specified receivers to change the service they output for a specified time period, then return to a specified service. During a retune event, the user is locked out from editing this menu to ensure that the receiver does not get lost when returning from the retune event.
- Isochronous data output.
- Disaster Recovery for L-Band signal loss.

Disaster Recovery

The DSR-4550 performs automatic disaster recovery of lost L-band signal without operator intervention based on settings and definitions provided by the uplink equipment. The DSR 4550 does the following in disaster recover mode:

- Mutes all outputs
- Maintains the current Low Noise Block (LNB) Converter offset
- Attempts to reacquire the lost L-band signal until the transponder-search entry delay time period has elapsed (default value is 30 seconds).

  Note: Transponder search entry delay time is set up by the uplink equipment.
- Automatically terminates disaster recovery when the lost signal is acquired.

Acronyms

The following acronyms are used within this manual.

AES/EBU	Audio Engineering Society/European Broadcasting Union
ASI	Asynchronous Serial Interface
APL	Applied Physics Laboratory
BNC	Bayonet Navy Connector
CATV	Cable Television
CND	Cannot Duplicate
DCII	DigiCipher® II
DSMCC	Digital Storage Medium Command and Control
DSR	Digital Satellite Receiver
DTMF	Dual-Tone Multi-Frequency
DVB	Digital Video Broadcasting
EIA	Electronic Industries Association
EMM	Entitlement Management Message
FCC	Federal Communications Commission

GigE	Gigabyte Ethernet
GND	Ground
H/LHP	Horizontal/Left-Hand Polarization
ISOC	Isochronous
IF	Intermediate Frequency
IP	Internet Protocol
IRD	Integrated Receiver Decoder
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LNB	Low-Noise Block Converter
MPEG	Motion Picture Experts Group
MPTS	Multiple Program Transport Stream
Msps	Mega-symbols Per Second
NEC	National Electric Code
NTSC	National Television System Committee
OSD	On-Screen Display
PAL	Phase Alternation by Line
PID	Packet ID
PMT	Program Map Table
RF	Radio Frequency
RSA	Return Service Authorization
RU	Rack Unit
SDI	Serial Digital Interface
SID/AMOL	Source Identification/Automatic Measurement of Lineups
TSID	Transport Stream Identification
VITS	Vertical Interval Test Signal
VBI	Vertical Blanking Interval
VCT	Virtual Channel Table
V/RHP	Vertical/ Right-Hand Polarization

2

Connecting the DSR-4550

Unpacking and Connecting the DSR-4550

Cable connections, described in this chapter, are made to the back panel of the DSR-4550.

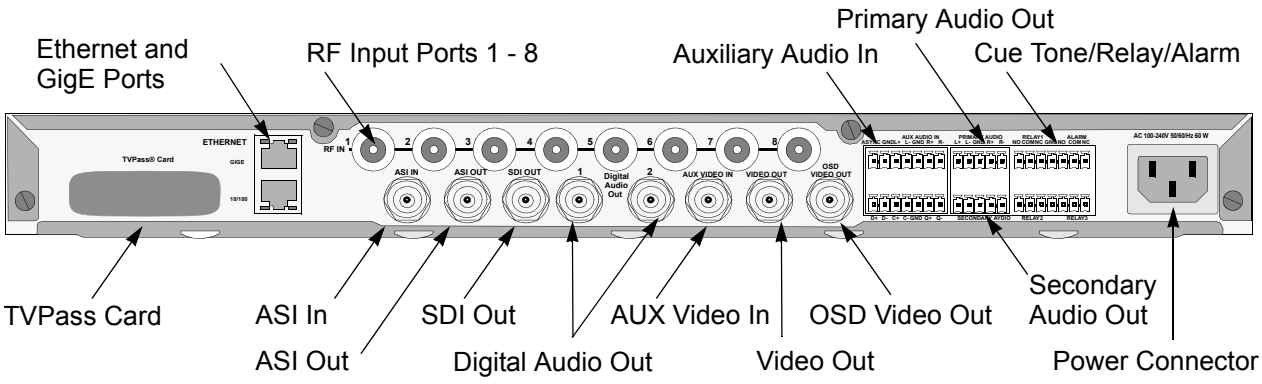
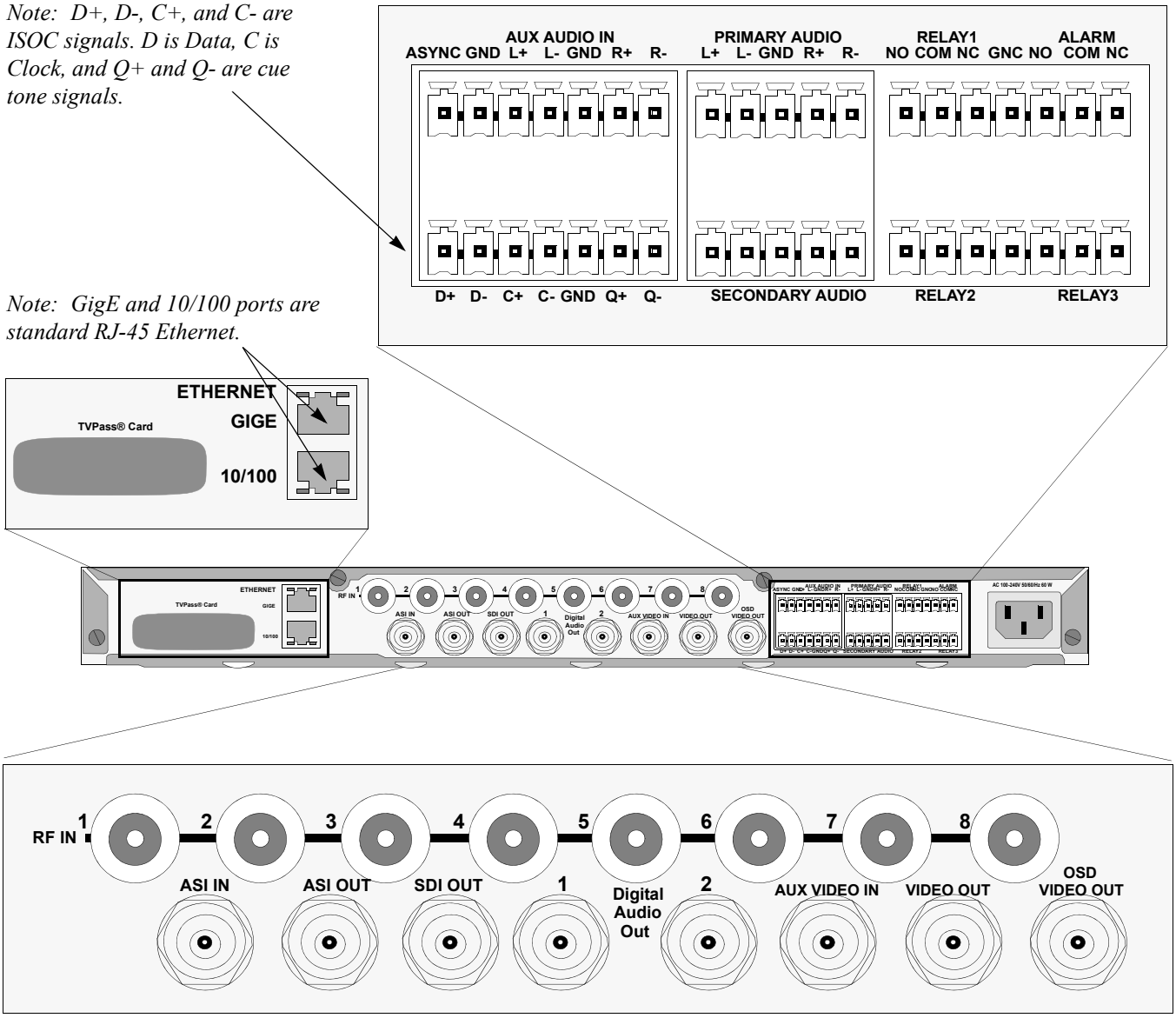


Figure 2-1: DSR-4550 Back Panel (Overview)

Note: D+, D-, C+, and C- are ISOC signals. D is Data, C is Clock, and Q+ and Q- are cue tone signals.

Note: GigE and 10/100 ports are standard RJ-45 Ethernet.



Note: Additional audio and data connectors may be ordered through Phoenix Contact part numbers 1840447 / 1840528.

Figure 2-2: DSR-4550 Back Panel (Detailed)

Unpacking

The shipping carton contains the DSR-4550, two quick disconnect terminals, a power cord, and this Operator Guide.

Rack Mounting Guidelines

The DSR-4550, with the supplied mounting brackets is designed for installation in an EIA standard 19-inch (480 mm) equipment rack. Place each DSR-4550 in a stable and level position within the rack and ensure that all front enclosure screws are tightened to 14 in-lbs. If multiple DSR-4550s are installed in a rack assembly, the operator may choose to have a certification agency evaluate the condition of the rack.

Mechanical Loading

The mounting rack location should be secure and level to avoid hazardous instability to the equipment due to uneven loading or weight distribution within the rack.

Ambient Temperature

When installing the DSR-4550 within a closed or multi-unit rack, the ambient temperature may be greater than the ambient temperature within the room. Therefore, verify that the amount of air flow required for safe operation is not compromised (maximum temperature for the equipment is 40° C). Consideration should be given to the maximum rated ambient temperature for the DSR-4550's location when planning for cooling and air circulation. To evacuate the DSR-4550's warm air output from within the mounting rack, Motorola Mobility recommends the use of a fan on top of the rack.

Circuit Overloading

If the DSR-4550 is connected to a power strip, rather than a branch circuit's direct connection, use special care to ensure that the unit is properly connected. Always consider the affect that overloading circuits might have on over-current protection and supply wiring. To ensure that circuits are not overloaded, read the DSR-4550 UL regulatory power label on top of the unit. Check all equipment power/amperage ratings to ensure the mounting rack power rating is not exceeded.

Earth Ground

Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips). The RF-IN antenna cable should only be connected while the unit is properly grounded. The shield of the coaxial cable should be earthed in YP accordance with Article 820.93 of the NEC (National Electrical Code), ANSI/NFPA 70:2005, or equivalent.

Battery Replacement

Do not replace the lithium battery used in the Motorola Mobility DSR-4550. Instead, return the DSR-4550 to a Motorola Mobility authorized service center for replacement with the same or equivalent type battery as recommended by the manufacturer.

Connecting a DSR-4550 for L-Band Input

To Connect a DSR-4550 for a New DigiCipher II Service

1. Determine which satellite, transponder, Virtual Channel Table (VCT) number, virtual channel, and audio mode (stereo, surround, mono, or dual mono) is to be used. Contact the programmer or network administrator to obtain this system information so that the desired services can be set up and received.
2. Connect the L-band inputs from the dish antenna and Low Noise Block (LNB). If LNB power is needed, use port 1, navigate to the appropriate menu (see "Port Config Menu" on page 24), and turn LNB power On. The default for LNB power is Off. Choose one of the following polarity configurations:
   a. For a single polarity L-band satellite connection, connect the coax from the LNB (either horizontal or vertical) to Port 1 through Port 8.
   b. For installations using both polarities of a satellite, connect one LNB coax to each port. The polarity is programmable for the DSR-4550. The default polarity for Port 1 is ---.
3. To view video and On-Screen Diagnostics (OSD) during installation, connect the OSD Video Output on the DSR-4550 to a 75-ohm video monitor. To view video, connect the Video Output to a channel modulator. Refer to "Viewing the Fast Fact Diagnostic Screens" on page 72.
4. To listen to audio during installation, connect the audio outputs to a local amplifier and speaker. A standard stereo system will suffice, but the lack of differential audio inputs may make the audio seem degraded. After the DSR-4550 is authorized and providing the desired service, reconnect these outputs to the channel modulator. Since these are differential pairs, it is recommended to use two pair shielded audio cables rather than the single wire and shield type.

   Note: For best quality audio, take care to ground the shield on both the IRD GND terminal and at the channel modulator end.
5. To set up the IRD for use in the network, choose one of the following audio configurations:
   a. For services transmitted in stereo and used in your plant as stereo, connect the Left Audio Out terminals (L+ and L-) to the left audio inputs on the channel modulator, and connect the Right Audio Out terminals (R+ and R-) to the right audio inputs on the channel modulator.
   b. For services transmitted as a single mono, connect the Left Audio Out terminals (L+ and L-) to the audio inputs on the channel modulator. Right Audio Out terminals (R+ and R-) also contain the single mono. For more details about mono configurations, see “Audio Mix Field” on page 25.
6. DSR-4550s are able to generate cue tones when commanded over the satellite link. If

these internally generated cue tones are used, connect the 600-ohm differential Cue Tone+ and Cue Tone- terminals on the DSR-4550 to the device receiving the tones. The cautions on cable and grounding noted in the audio instructions also apply to cue tones.

7. If using ASI output, select the service that is desired on the output. If PID Aliasing is turned on, the DSR-4550 only outputs the specified service.

Powering On the DSR-4550

To apply power to the DSR-4550, perform the following steps:

1. Plug the DSR-4550 into a power source and all LEDs on the front panel are illuminated while the front-panel LCD screen is blank. After approximately 60 seconds, the LEDs go out and the LCD screen displays a screen similar to the following:

   This screen is displayed for only 30 seconds, then the front panel LCD displays the Main menu.

2. Proceed with the installation and set up using the front panel menus as described in "Operating the DSR-4550" on page 11.

3

Operating the DSR-4550

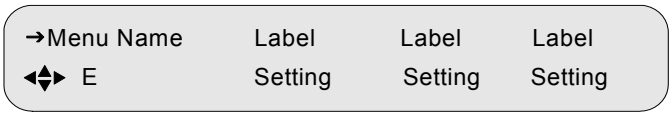
All operations described in this chapter require use of the DSR-4550 front panel, as shown in Figure 3-1.

Figure 3-1: DSR-4550 Front Panel

Using the Front Panel

The front panel LCD screen displays a series of menus that can be used to configure and control the system. The name of the current menu is always in the upper left corner of the screen for easy identification.

- Beneath every menu name are symbols representing key presses that are possible from the current cursor position in the menu. Note that the available keypad moves may change during the navigation between menu fields.



- The top row to the right of the menu name displays the name of each field available within that menu. These are called field labels and its setting is displayed directly below.
- Beneath each label is the current setting for each field.
- Some fields may be changed by the user and others are for display purposes only. Fields that can be changed have an arrow indicator just to the left of the field label. During left/right navigation, the cursor skips over the labels that cannot be changed.

The LCD is momentarily backlit with circuitry that turns off the backlighting approximately four minutes after the last button press or warning screen. To view the screen after backlighting has turned off, press any button once to turn on the backlighting.

In addition to the menus on the LCD screen, the LED indicators show the receiver's current status. The Signal light is lit when the receiver recognizes a valid carrier signal. The authorized LED is lit when the DigiCipher II system LED is lit and either (1) the programmer has transmitted the access messages to allow the receiver to decrypt the signal, or (2) the signal is unencrypted or fixed key. The Bypass LED is on when the Aux Video and Audio inputs are routed to the receiver outputs.

If the IRD is in an alarm condition, the Alarm LED is lit.

Navigating the Menus

Even though the keypad options shown on the LCD screen may change for each menu and for each field, the control buttons basically do the same thing. The user may want to practice on a screen to become familiar with how the buttons work. Notice that:

- Pressing the ▲ ▼ buttons while the cursor is blinking next to the menu name (far left corner), causes the cursor to scroll to another menu.
- Pressing the ENTER button while the cursor is blinking next to the menu name (far left corner) causes the cursor to scroll to the Main, top-level menu.
- Pressing the ◀ ▶ buttons while in the top line of the menu causes the cursor to move between field labels (or the menu name and a field label).
- Pressing the ▶ button at the rightmost field label causes the cursor to wrap to the left side of the screen (to the menu name). Likewise, pressing the ◀ button when the cursor is at the menu name causes the cursor to wrap to the rightmost field label.
- When the cursor is blinking on a field label (top row), pressing the ENTER button causes the cursor to move below the label and enter into the field so the setting can be changed.
- When the cursor is below the label, the displayed directional controls in the left corner show what buttons can be pressed to change the setting in that field. Usually the ▲ ▼ buttons are used to display the various options associated with a particular field.
- Individual alphanumeric characters that are part of a string may be changed when the ▲ ▼ symbol is present in the field. For example, the letters used for the abbreviation of the audio language (e.g., eng or spa) are an editable string of characters that can be edited individually. To do this:
    1. Use the ◀ ▶ buttons to select the alphanumeric character to change.
    2. While in the character position to be changed, press the ▲ ▼ buttons to scroll through the alphanumeric character.
    3. When the desired character is displayed, use the ◀ ▶ buttons to move to the next character position.
    4. Repeat this process for each applicable character to be changed and when finished, press the ENTER button to record the character string.
- To confirm and accept any changes to a field and move back up to the label line, press the ENTER button.

How to Use the Menus

About Menu

The front panel LCD displays the About menu when the DSR-4550 is initially plugged in or after a factory reset. This menu identifies the model (MOTOROLA DSR-4550) and the currently installed firmware version.

After initial power up this menu is displayed for only 30 seconds, then the front panel LCD displays the Main menu.

Main Menu

This menu is the top-level menu (shown below) and can be accessed from any other menu by pressing the ENTER button while the cursor is blinking next to the menu name on the far-left of the menu screen.

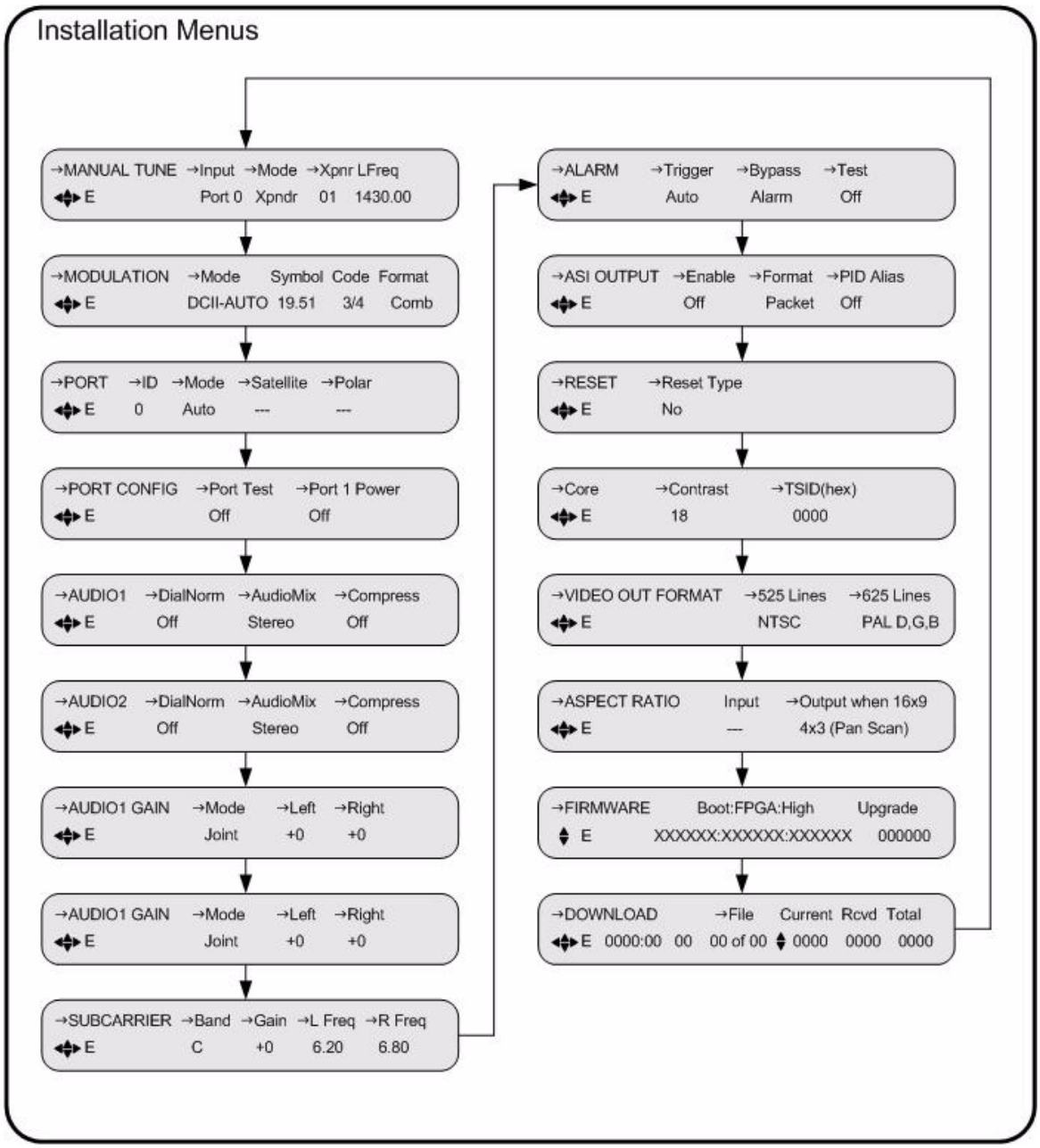
The Main menu (shown below) allows the user to select any one of the five main menu groups:

- Installation menus, see page 18.
- Channel menus, see page 37.
- IP menus (and GigE menus), see page 45 and page 47.
- Status menus, see page 50.
- Diagnostics menus, see page 55.

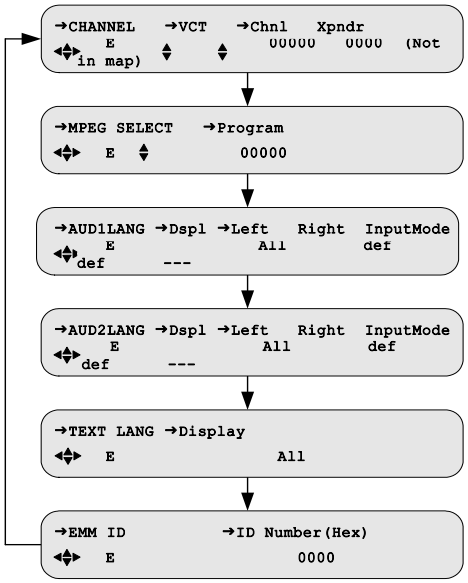
The DSR-4550 allows the user to scroll only to menus that are in the same group. To scroll to a menu that is in a different menu group, return to the main top-level menu and select the desired menu group.

Overview of the LCD Panel Menu Tree

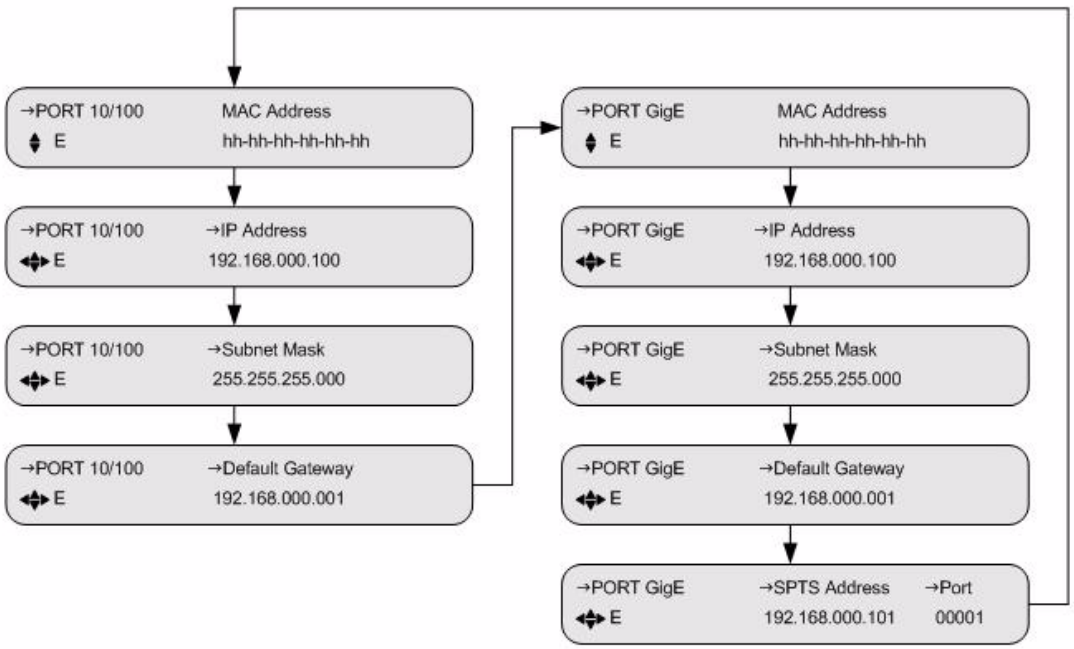
Pressing the ENTER button when the cursor is on a menu name causes the cursor to return to the main, top level menu. The charts on the following pages show the menus organized into five main groups: Installation menus, Channel selection menus, IP menus (including the GigE menus), Status menus, and Diagnostics menus.


Installation Menus
→MANUAL TUNE →Input →Mode →Xpnr LFreq
E Port 0 Xpndr 01 1430.00
→MODULATION →Mode Symbol Code Format
E DCII-AUTO 19.51 3/4 Comb
→PORT →ID →Mode →Satellite →Polar
E 0 Auto --- ---
→PORT CONFIG →Port Test →Port 1 Power
E Off Off
→AUDIO1 →DialNorm →AudioMix →Compress
E Off Stereo Off
→AUDIO2 →DialNorm →AudioMix →Compress
E Off Stereo Off
→AUDIO1 GAIN →Mode →Left →Right
E Joint +0 +0
→AUDIO1 GAIN →Mode →Left →Right
E Joint +0 +0
→SUBCARRIER →Band →Gain →L Freq →R Freq
E C +0 6.20 6.80
→ALARM →Trigger →Bypass →Test
E Auto Alarm Off
→ASI OUTPUT →Enable →Format →PID Alias
E Off Packet Off
→RESET →Reset Type
E No
→Core →Contrast →TSID(hex)
E 18 0000
→VIDEO OUT FORMAT →525 Lines →625 Lines
E NTSC PAL D,G,B
→ASPECT RATIO Input →Output when 16x9
E --- 4x3 (Pan Scan)
→FIRMWARE Boot:FPGA:High Upgrade
E XXXXXX:XXXXXX:XXXXXX 000000
→DOWNLOAD →File Current Rcvd Total
E 0000:00 00 00 of 00 0000 0000 0000

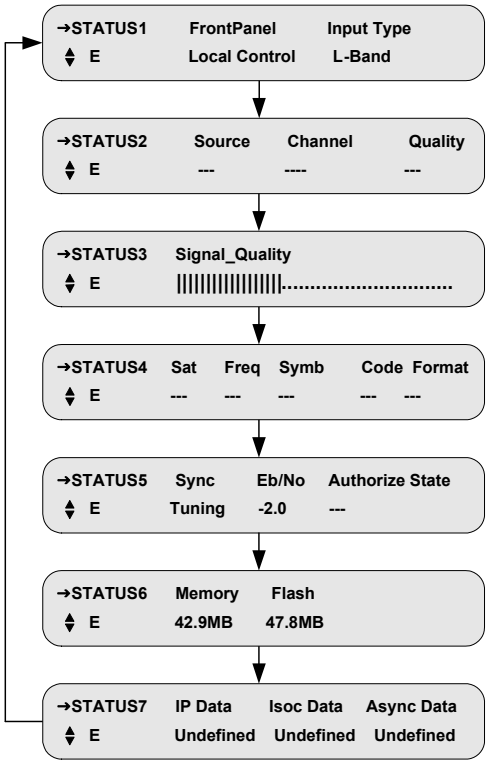
Channel Selection Menus



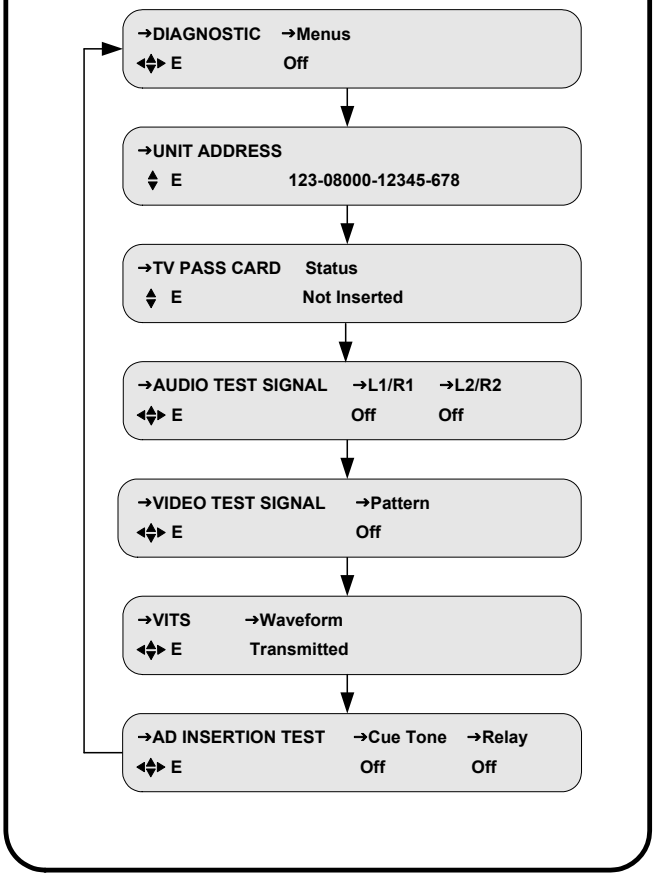
IP Menus



Status Menus


→STATUS1 FrontPanel Input Type
E Local Control L-Band
→STATUS2 Source Channel Quality
E --- ---- ---
→STATUS3 Signal_Quality
E
→STATUS4 Sat Freq Symb Code Format
E --- --- --- --- ---
→STATUS5 Sync Eb/No Authorize State
E Tuning -2.0 ---
→STATUS6 Memory Flash
E 42.9MB 47.8MB
→STATUS7 IP Data Isoc Data Async Data
E Undefined Undefined Undefined

Diagnostic Menus



Installation Menus

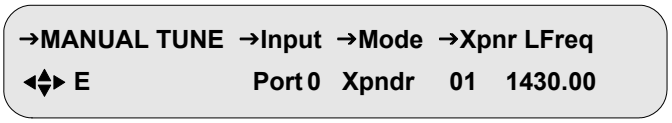
The purpose of the installation menus is to configure the ports and choose settings that remain fixed over a period of time (i.e., global-type settings). These settings include video output format, audio output format, Ethernet port addresses, and bypass mode operation. This section describes in detail each of the installation menus, fields, and options displayed on the LCD panel.

To access the Installation menus, press ENTER button to return to the main top-level menu (shown below).

Press the ◂ ▸ buttons until the cursor is at the Install label, and press the ENTER button. The DSR-4550 displays the first sub-menu within the Installation menus.

Manual Tune Menu

Use this menu to initially acquire a DigiCipher II system signal and download virtual channel tables by selecting a transponder frequency for each of the eight L-Band inputs, which are labeled Port 1 through Port 8.



In addition, this menu allows a user to select ASI In as the desired signal input to the DSR-4550.

When an L-band port is selected, the user must additionally specify an L-band frequency and modulation format. For more details, see "Modulation Menu" on page 21.

Because the North American C-band frequency plans are standardized, select a transponder number for these satellites. Use the Xpndr option in the Mode field and the Xpnr (transponder) fields for these.

If a selection of an International C-band, a functional transponder, or a Ku-band satellite is preferred, use the LFreq option in the Mode field and directly enter the L-band frequency. The DSR-4550 requires no distinction between Ku-band and C-band signals after selecting the L-band carrier frequency.

Input Field **Default: Port 1**

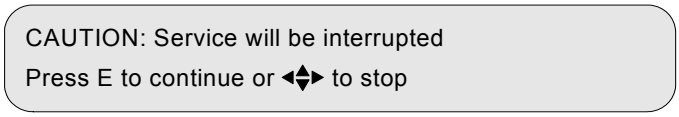
Note: Unless changed, the DSR-4550 displays values for an L-band input on Port 1.

The Input field displays the input to which the receiver is currently tuned. It allows manual selection of Port 1 through Port 8 for the L-band inputs or ASI input to the DSR-4550.

To select the Input, press the ▸ button until the cursor is at the Input label and press the ENTER button. Press the ▲ ▼ buttons to scroll through the options: Port 1 - 8 or ASI In. Press ENTER to confirm the selection and return to the top line of the menu.

Note: If Port 1 through Port 8 is selected, then move to the Mode field, Xpnr field or Lfreq field. These fields are not visible when ASI In is selected.

The following Caution screen prompts the user to confirm the selection.



Press any arrow button (◂ ▸ ▲ ▼) to back out of making any changes. However, to confirm the selection, press the ENTER button to set the port selection.

Mode Field **Default: Xpndr**

Note: This field is not available when the ASI In option in the Input field is selected.

The Mode field allows selection of the frequency plan type for the satellite to which the DSR-4550 is tuned.

Note: If the application is a North American C-band satellite, select the transponder number in the Xpnr field. Otherwise, use the LFreq option and the LFreq field. The LFreq option can be used for all satellites, including current C-band, Ku-band, and future satellites where the frequency plans are unknown at the time of receiver manufacture.

Press the ▸ button until the cursor is on the Mode label. Then press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the choices: Xpndr or LFrq.

- If Xpndr is selected, choose a transponder in the Xpnr field. The frequency in the LFreq field is set automatically based on internal transponder tables.
- If LFreq is selected, dashes (--) appear in the Xpnr field because the transponder/frequency relationship is not known. Select a transponder frequency from 950 to 2150 MHz in the LFreq field. At this point, a transponder cannot be selected in the Xpnr field.

Press the ENTER button to confirm the selection.

Xpnr Field **Default: 1**

Note: This field is not available when the ASI In option in the Input field is selected. The Xpnr field cannot be edited if LFreq in the Mode field is selected.

The Xpnr (transponder) field allows selection of an initial satellite transponder number (range: 1 through 24) and can only be used if the Xpndr option in the Mode field is selected. The Xpnr field cannot be edited if LFreq is selected in the Mode field.

Press the ▸ button until the cursor is at the Xpnr label. Then press the ENTER button to move into the field. Press the ▲ ▼ buttons to select the desired transponder number. Since the associated transponder/frequency tables are stored in the DSR-4550, scroll through the transponder numbers and notice that the associated frequency (shown in the LFreq field to the right) automatically changes with the selection (970-1430 MHz).

When the desired transponder selection is displayed, press the ENTER button to confirm selection and move the cursor back up to the field label.

LFreq Field **Default: 1430MHz**

Note: This field is not available when the ASI In option in the Input field is selected. The LFreq field cannot be edited if Xpndr in the Mode field is chosen.

Contact the programmer or network operator for details about the satellite, transponder, and frequencies being used during installation.

The LFreq field defines the L-band frequency to which the unit tunes during installation. If the LFreq option in the Mode field is selected, use this field to directly tune the IRD to the required frequency.

Note: The transponder number (shown in the Xpnr field) continues to contain dashes (--) since a transponder number is not required.

For non-C-band, use the LFreq option to enter the exact center frequency of a carrier. The receiver tuner pulls from a large offset to capture the signal, but long-term tracking is best if the user enters a precise carrier center frequency.

Press the ▸ button until the cursor is at the LFreq label. Then press the ENTER button to move into the field. Use the ◂ ▸ ▲ ▼ buttons to select the desired frequency. Select a frequency from 950 MHz to 2150 MHz and press the ENTER button to confirm a selection and move the cursor back up to the field label.

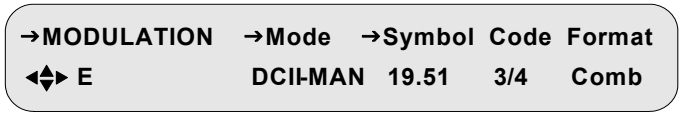
The DSR-4550 requires 30 to 60 seconds to download the network data. Afterward, the user can view the Port menu for the active port to select the satellite name from a list of available satellites (for more details, see "Port Menu" on page 22).

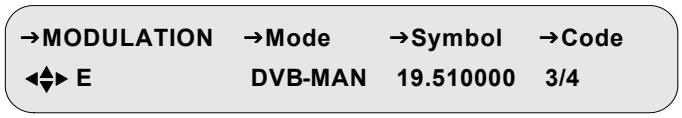
Modulation Menu

Note: This menu is not available when the ASI In option is selected. That option is located in the Manual Tune menu (described on page 18).

This menu, together with the Manual Tune menu, allows the user to initially acquire a DigiCipher II signal. Press the ▲ ▼ buttons until the Modulation menu appears. Press the ENTER button to continue.

When either the DCII-MAN, 8PSK (Phase Shift Keying Modulation with turbocodes), or DVB-MAN, the user must additionally specify a Symbol/Code/ Format combination.





Mode Field **Default: DCII-AUTO**

Press the ▶ button until the cursor is at the Mode label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the options: DCII-AUTO, DCII-MAN, 8PSK (Phase Shift Keying Modulation with turbocodes), or DVB-MAN. Select a mode and press ENTER to exit the field.

Note: In any of the non-auto modes [i.e., DCII-MAN, DVB-MAN (both manual modes) or 8PSK (Phase Shift Keying Modulation with turbocodes)], the DSR-4550 only searches for a signal that matches what is set in the Symbol/Code/Format field. If DCII-AUTO is selected, the DSR-4550 searches through all available combinations to acquire a signal, and then remains parked on a signal once it is acquired.

Symbol/Code/Format Field **Default: Mode-Dependant**

Note: This field is not available when the DCII-Auto option in the Mode field is selected.

The symbol rate, in Msps, for which the unit attempts acquisition when the selection for acquisition mode is either DCII-MAN, 8PSK (Phase Shift Keying Modulation with turbocodes), or DVB-MAN. The Symbol/Code/Format field has the following options, depending upon the Mode field selection.

- DCII-MAN: 3.25; 4.88; 7.32; 9.76; 11.71; 14.63; 19.51 (default); 29.27
- 8PSK (Phase Shift Keying Modulation with turbocodes): Range 01.000000 (default) to 30.000000
- DVB-MAN: Range 00.000000 (default) to 99.999999

Press the ▸ button until the cursor is at the Symbol label, and press the ENTER button to move into the menu. Press the ▲ ▼ buttons to display the options. Using the ▲ ▼ buttons, scroll through the various Symbol/Code/Format combinations and select the required combination by pressing the ENTER button to return to top menu.

Port Menu

Note: This menu is not available when the ASI In option is selected. That option is described in "Manual Tune Menu" on page 18.

The Port menu is available when the Manual Tune input setting is one of the L-band ports as described in the "Manual Tune Menu" on page 18.

In order to use virtual channels, one or more ports must be associated with a particular satellite and polarity. These menus allow the user to associate the satellite and polarity with Port 1 through Port 8. Press the ▲ ▼ buttons until the Port menu appears (shown below).

→PORT	→ID	→Mode	→Satellite	→Polar
◂✥▸ E	1	Auto	---	---

Port 1 through Port 8 may be set up manually or automatically, and each individually. The user enters the satellite and polarity information directly when the port is setup manually. Otherwise, when the port is setup automatically, the DSR-4550 associates the port with the satellite and polarity information that matches the first virtual channel that is chosen (and acquired) after the user manually tunes that port.

ID Field **Default: 1**

Use this field to choose which L-band port to configure. Press the ▸ button until the cursor is at the ID field, then use the ▲ ▼ buttons to choose a port number (1-8). Press the ENTER button to select and exit the field.

Mode Field **Default: Auto**

Use the Mode field to select the mode for port setup, either Manual or Auto. Press the ▸ button until the cursor is at the Mode label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to view the desired mode and press the ENTER button to select the mode and exit.

Satellite Field **Default: ---**

Note: This field displays the satellite to which the port is related and is not editable when the Auto option is selected in the Mode field. This field displays dashes (---) when the port is not related to a satellite.

The Satellite field defines the abbreviated name (two or three alphanumeric characters) for the satellite to which the selected port is associated when the Manual mode is selected. The Satellite field is a user-configurable parameter which the unit may overwrite depending on information received in download tables.

Press the ▸ button until the cursor is at the Satellite label. Press the ENTER button to enter this field, use the ◂ ▸ buttons to select the character position to be changed. Then use the ▲ ▼ buttons to scroll through the character choices. Press the ENTER button to select a character in each character position. When complete, press the ENTER button again to confirm the name and exit the field.

Polar Field **Default: ---**

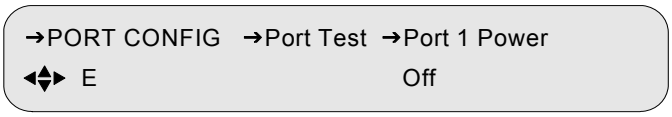
Use this field to select a polarity when the Manual option in the Mode field is selected. Press the ▸ button until the cursor is at the Polarity label. Press the ENTER button to enter this field and press the ▲ ▼ buttons to display the options:

- H/LHP (Horizontal/Left-Hand Polarity)
- V/RHP (Vertical/Right-Hand Polarity)

Select a polarity and press ENTER to exit the field.

Port Config Menu

Use this menu to configure the LNB converter power for port 1.



Not Supported

Port Test Field

This function is not supported at this time.

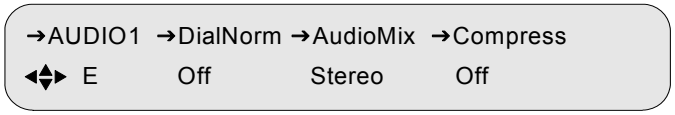
Port1 Power Field **Default: Off**

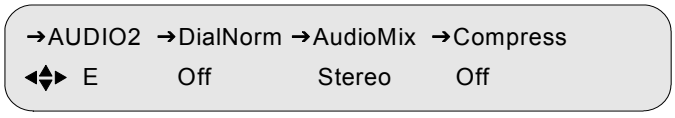
Use this field to direct power to the external Low-Noise Block (LNB) converter. When the ON option is selected, the DSR-4550 supplies +20 VDC on the port 1 antenna input connector.

Press the ▸ button until the cursor is at the LNB Power label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the two options, Off and On.

Audio1 and Audio2 Menus

These menus have three fields that allow the user to customize the audio output based on options provided by the digital audio compression. Press the ▲ ▼ buttons until the Audio1 or Audio2 menu appears (shown below).





DialNorm Field **Default: On**

The DialNorm field allows the user to normalize speech levels to a constant level over all channels—raising or lowering the volume of the dialogue to a level that is appropriate for the background sound track.

Press the ▸ button until the cursor is at the DialNorm label. Press the ENTER button to move into the field. There are two options, On and Off. Press the ▲ ▼ buttons to change the setting. Press ENTER to confirm selection.

AudioMix Field **Default: Stereo**

This field allows selection of the audio processing options. Press the ▸ button until the cursor is at the AudioMix label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the options: Stereo, Surround, Mono, or Dual Mono.

If Dual Mono is selected, a caution screen appears.

CAUTION: Check audio language selection
Press E to continue or ◂▲▼▸ to stop

The warning screen is needed because of possible conflicts between this menu and the channel selection menus that specify audio language and appears if the user had previously used the Language menu (channel selection group, see "Aud1Lang, Aud2Lang Menus" on page 41) to select a single language for Mono or Stereo output and then changed this setting to Dual Mono output.

Note: If the audio input mode is stereo and you are connecting to a mono modulator, you must set this field to Mono.

By pressing the ENTER button (ignoring the caution and taking no action in the Lang menu of the channel selection group), the DSR-4550 changes to Dual Mono, and uses the language previously selected for Mono (or Stereo) for both left and right. The DSR-4550 now requires e a language defined for both left and right dual mono outputs.

Conversely, if the user had previously selected Dual Mono output in two languages, but later changed to Stereo or Mono output in this menu, the output reverts to the Dual Mono language that is defined for the left channel.

Compress Field **Default: Moderate**

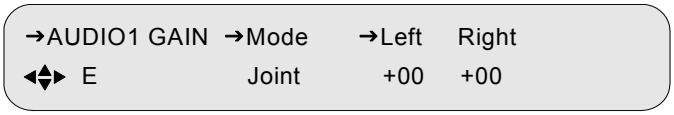
This field allows control of the degree of audio level compression. Press the ▸ button until the cursor is at the Compress label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the options:

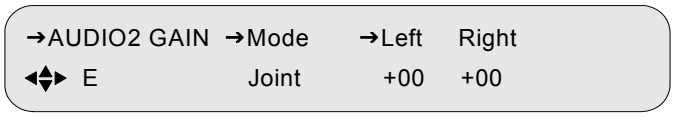
- Heavy: Reduces the louder audio signals and boosts the softer signals using tighter compression thresholds in order to eliminate dramatic fluctuations in the audio signal level and suppress dynamic range of the audio signal.
- Moderate: Provides some reduction and amplification of the audio signal, but the thresholds are wider apart, providing moderate dynamic range of the audio signal.
- Off: Compression is not used and provides full dynamic range of the audio signal.

Press the ENTER button to confirm the selection.

Audio1 Gain and Audio2 Gain Menus

These menus allow adjustment of the audio signal output level from 0 to -20dB in 1dB increments. Press the ▲ ▼ buttons until the AUDIO1 GAIN or AUDIO2 GAIN menu appears.





The user may adjust the output levels of the left and right channels jointly. The output level of the right channel tracks the setting for the left channel when the output levels are adjusted jointly.

Mode Field **Default: Joint**

The Mode field allows the user to select the mode by which the user adjusts the Audio Gain port. Press the ▸ button until the cursor is at the Mode label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to view the two options:

- Independent: Each channel is set up and controlled independently.
- Joint: Both channels are configured jointly using the Left field settings as the control for both audio channels.

Press the ENTER button to select the option shown and exit the field.

Left and Right Fields **Default: 0**

Note: The Right field is not editable when the Joint option is set for the Mode field.

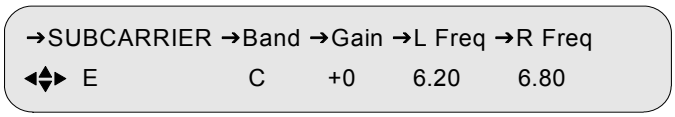
The Left and Right fields allow adjustment of the output level of the Left and Right audio signals. Press the ▸ button until the cursor is at the desired label, and press the ENTER button to move into the field.

When Independent option is selected, use the ▲ ▼ buttons to simultaneously adjust the output level for the left and right audio signals.

Press the ENTER button to confirm the selections.

Subcarrier Menu

The Subcarrier menu is used to set up standard settings used for analog manual tuning. Press the ▸ button until the cursor is at the SUBCARRIER label, and press the ENTER button to move into the field.



Band Field **Default: C-Band**

The Band field defines the frequency band type of the satellite to which the unit is tuned. Press the ▸ button until the cursor is at the Band label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to select the desired options: C-band or KU-band. Then press the ENTER button to confirm the selection.

Gain Field **Default: 00dB**

Note: The gain must always be adjusted regardless of whether or not the signal is acquired through virtual channel selection.

The Gain field defines the audio gain (expressed in dB, range is -15db to 00dB). Press the ▸ button until the cursor is at the Gain label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to set the standard audio gain for a manually-tuned analog signal. Then press the ENTER button to confirm the selection.

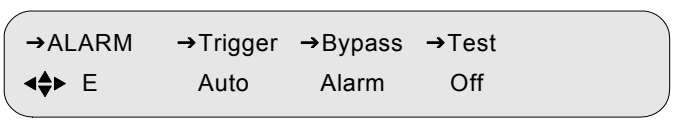
L Freq and R Freq Fields **Default: Left - 6.20 MHz, Right - 6.80 MHz**

The L- Freq and R-Freq fields defines the subcarrier frequency for the left/right audio channels expressed in MHz (range is 5.80 to 8.50 MHz). Press the ▸ button until the cursor is at the L Freq or R Freq label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to change the audio subcarrier value. Then press the ENTER button to confirm the selection.

Alarm Menu

This menu allows the user to set up different bypass modes in case the DSR-4550 goes into an alarm condition.

Press the ▼ button until the Alarm menu is located (shown below).



Trigger Field **Default: Auto**

The Trigger field allows the user to select the trigger condition to activate an alarm on the IRD. When the alarm is activated, the Alarm LED illuminates and the alarm relay indicates an alarm condition. The alarm can be activated for any of the following conditions:

- The tuner loses lock when the input is RF.
- The DSR-4550 cannot lock to the ASI input when the input is ASI.
- The DSR-4550 is unable to render video.
- The DSR-4550 is not authorized to access the selected service.
- The DSR-4550 loses power.

Press the ▸ button until the cursor is at the Trigger label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the five options:

- Disabled: Disables any trigger for an IRD alarm.
- Auto: Enables all triggers for an IRD alarm.
- No Signal: Alarm is triggered when the IRD loses the incoming signal.
- No Video: Alarm is triggered when the IRD loses video input.
- No Auth (Authorization): Alarm is triggered when the IRD is not authorized to access a selected service.

Press the ENTER button to select the option shown and exit the field.

Bypass Field **Default: Alarm**

Press the ▸ button until the cursor is at the Bypass label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the options:

- If Bypass is selected, the Bypass mode is activated and the DSR-4550 loops through the auxiliary video and audio inputs regardless of DigiCipher II system service authorization status. The Bypass LED on the front panel is always lit when the DSR-4550 is in the bypass state.
- If Disabled is selected, the DSR-4550 ignores the auxiliary inputs for video and audio and attempts to output the satellite data, regardless of authorization status.
- If Alarm is selected, the DSR-4550 automatically switches to the bypassed state if it enters the alarm condition. At such time, the Aux Video and Audio inputs are routed to the IRD output, and the front panel Bypass LED is lit. When the DSR-4550 exits the alarm condition, the unit switches back to satellite video and audio.

Press the ENTER button to select the option shown and exit the field.

Test Field **Default: Off**

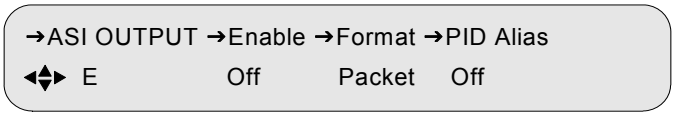
Note: The Test field returns to the default value (Off) when the field is exited.

The Test field provides an IRD alarm test when this field is set to On. Press the ▲ ▼ buttons to display the two options: Off or On.

Press the ENTER button to select the option shown and exit the field.

ASI Output Menu

This menu allows the user to configure the digital ASI output. It is used to define the format of the ASI output and to enable PID aliasing. Press the ▲ ▼ buttons until the ASI Output menu appears (shown below).



Enable Field **Default: On**

The Enable field allows the user to enable (on) or disable (off) the ASI output. Press the ▶ button until the cursor is at the Enable label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the two options: Off and On. Press the ENTER button to select the option shown and exit the field.

Format Field **Default: Byte**

The Packet and Byte options specify the transport stream packet structure. When the ASI Output is enabled, the DSR-4550 outputs MPEG-2 transport stream packets, either as a burst of contiguous bytes (Packet option), or as individual bytes (Byte option). Press the ▶ button until the cursor is at the Format label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the options: Packet or Byte. Press the ENTER button to select the option shown and exit the field.

PID Alias Field **Default: On**

The PID Alias field defines audio/video/data characteristics of the transport stream. Press the ▶ button until the cursor is at the PID Alias label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the two options: Off and On. Press the ENTER button to select the option shown and exit the field.

- When PID aliasing is Off, the ASI output contains the entire transport stream.
- When PID aliasing is On, the ASI or Gig-E output contains only video, audio, and data components of the selected channel and the PID values are remapped to a consistent numbering scheme.

Reset Menu

The Reset menu allows the user to reset the unit to the factory default settings or perform a power cycle. Press the ▲ ▼ buttons until the Reset menu appears (shown below).

```
→RESET   →Reset Type
◄▲▼► E       No
```

Reset Type Field **Default: No**

Press the ► button until the cursor is at the Reset Type label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the two options: Factory Defaults and Power Cycle, which are explained below.

Factory Defaults Option

Caution: Selecting this reset option deletes all defined setups and downloaded information. This operation interrupts service output, so use it carefully.

The Factory Defaults option allows the user to reset the system to the programming values originally set by the factory firmware. When the option is shown, press the ENTER button and a caution message is displayed:

```
CAUTION: IRD memory will be reset
Press E to continue or ◄▲▼► to stop
```

Press any arrow button (◄ ► ▲ ▼) to back out of the field and leave it unchanged. Otherwise, press the ENTER button to proceed.

During factory reset, the following message is displayed:

```
Factory Default reset in progress. . .
Press E to continue or◄▲▼► to stop
```

Power Cycle Option

The Power Cycle option reboots the DSR-4550 without losing internal user setup information or downloaded network information. When the option is shown, press the ENTER button and a caution message appears indicating that the current service will be interrupted if the action proceeds.

```
CAUTION: Reset will interrupt service
Press E to continue or ◄▲▼► to stop
```

Press any arrow button (◄ ► ▲ ▼) to back out of the field and leave it unchanged. Otherwise, press the ENTER button to proceed. The following message displays.

Core Menu

The Core menu allows the user to change the front panel Liquid Crystal Display (LCD) contrast, select where text (e.g., subtitles) is displayed, and turn on/off the LNB power output to Port 1.

Press the ▲ ▼ buttons until the Core menu appears (shown below).

Contrast Field **Default: 18**

To adjust the LCD contrast, press the ► button until the cursor is at the Contrast label, and press the ENTER button to move into the field. Use the arrow buttons (◄ ► ▲ ▼) to select a value between 1 and 30, with 1 representing the least contrast and 30 the most. Adjust the contrast so that the LCD panel can be read clearly. Press the ENTER button to confirm the selection.

Not Supported

TSID Field **Default: 0000**

Note: The Transport Stream ID (TSID) field is not supported at this time.

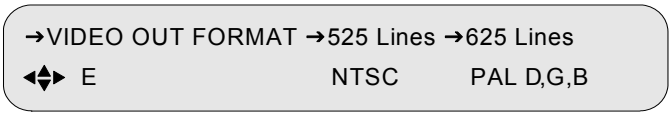
The TSID field (range 0000 to FFFF) is a hexadecimal number to identify the Transport Stream. The TSID value applies when the symbol rate is 4.88 Msps or less, then the unit uses this value during manual tune to acquire the correct signal.

Video Out Format Menu

The Video Out Format menu allows the user to configure the video format. Press the ▲ ▼ buttons until the Video Out Format menu appears (shown below). It has two fields that allow modification of the output format.

Note: The receiver does not convert 525-line video to 625-line video or convert 625-line video to 525-line video.

- When the input to the uplink encoder is 525-line, the field here selects the receiver output to be NTSC or PAL M, and the 625-line field has no impact.
- When the input to the uplink encoder is a 625-line, the field selects the type of PAL the receiver outputs, and the NTSC or PAL M selection has no impact.



525 Lines Field **Default: NTSC**

Press the ▶ button until the cursor is at the 525 Lines label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the desired options of NTSC or PAL M and press the ENTER button to confirm the selection and exit the field.

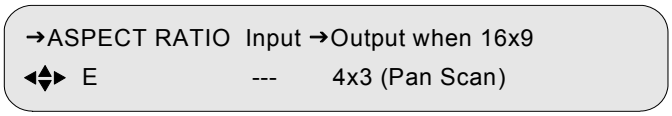
625 Lines Field **Default: PAL D, G, B**

Press the ▶ button until the cursor is at the 625 Lines label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the options of PAL D, G, B; PAL I; or PAL N. Press the ENTER button to confirm the selection and exit the field.

Aspect Ratio Menu

The Aspect Ration Menu displays the current input aspect ratio and has one field that allows the output aspect ratio to be changed when the uplinked video has an aspect ratio of 16x9. Press the ▲ ▼ buttons until the Aspect Ratio menu appears (shown below).

Note: If the DSR-4550 receives input of 4x3, the output is always 4x3.



Read-only

Input Field

The Input field displays the aspect ratio of video that the DSR-4550 is currently receiving, either 4x3 or 16x9. This field is non-editable. Three dashes (---) are displayed when no signal is received.

Output Field Default: 16x9

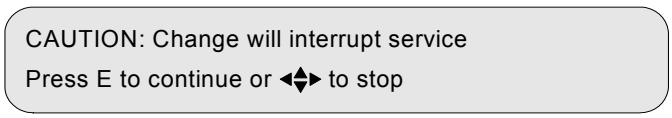
The aspect ratio conversion is applicable only if the aspect ratio of the source/input video is 16x9. The unit converts 16x9 source video to a 4x3 aspect ratio in the zoom, pan-scan, or letterbox format based on what is selected for the Output field.

Press the ▶ button until the cursor is at the Output label. Press the ENTER button to enter the field. Press the ▲ ▼ buttons to display the desired options of: 16x9, 4x3 ZOOM, 4x3 PAN (information in the video material directs which portion of the 16x9 image to output), and 4x3 LETTERBOX.

Note: If 4x3 PAN information is not available when the 4x3 PAN option is chosen, the DSR-4550 outputs the center portion of the 16x9 image.

Use the ▲ ▼ buttons to specify the desired option.

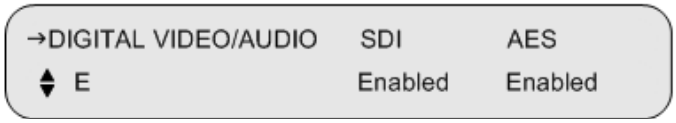
If you select a new aspect ratio, the following warning screen appears.



Press any arrow button (◀ ▶ ▲ ▼) to back out of the field and leave it unchanged. Otherwise, press the ENTER button to proceed.

Digital Video/Audio Menu

The Digital Video/Audio Menu configures the digital video/audio rear-panel connections (either enabled or disabled). Press the ▲ ▼ buttons until the Digital Video/Audio menu appears (shown below).



SDI Field **Default: Enabled**

The SDI field enables or disables the Serial Digital Interface (digital video output) from the one SDI connector on the rear of the DSR-4550. Press the ▲ ▼ buttons to enable or disable SDI and press the ENTER button to confirm the selection.

AES Field **Default: Enabled**

The AES field enables or disables the digital audio output (per a standard from the Audio Engineering Society) for the two Digital Audio connectors on the rear of the DSR-4550. Press the ▲ ▼ buttons to enable or disable AES and press the ENTER button to confirm the selection.

AC-3 Compression Menu

The AC-3 Compression Menu displays the current AC-3 compression selections (either internal or external) for audio 1 and audio 2 channels. Press the ▲ ▼ buttons until the AC-3 Compression menu appears (shown below).

Audio 1 and Audio 2 Field **Default: Internal**

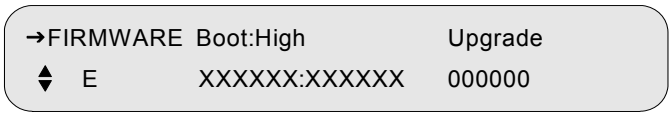
The Audio 1 or 2 fields sets the AC-3 decoding mode for both audio channels. If set to Internal, the IRD decodes the AC-3 audio data. If set to External, the IRD does not process the audio internally and it indicates there is external audio decoding equipment associated with both audio channels.

Press the ▲ ▼ buttons to set the AC-3 decoding on Audio 1or Audio 2 and use the ◄ ► buttons to move from field to field within this menu.

Firmware Menu

The Firmware menu displays the DSR-4550's firmware release information, which is equivalent to the product version number. This menu cannot be changed, but since the firmware is periodically updated, this menu confirms that the update was successful. This menu is used most commonly in troubleshooting.

Press the ▲ ▼ buttons until the Firmware menu appears (shown below).



Read-only

Boot:High Field

The Boot:High field displays the version of boot code and the high code. The boot code is loaded at the factory. The high code may be upgraded to later versions by a download that is delivered over the satellite signal (from either the L-band or ASI input). The version of both the boot and high code is represented by a six-digit hexadecimal number. This field is non-editable.

Read-only

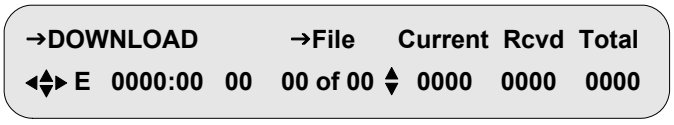
Upgrade Field

The Upgrade field displays the version of the upgrade code that is available. This field displays 000000 when no upgrade code is available. Available upgrades are installed the next time the DSR-4550 is powered on. This field is non-editable.

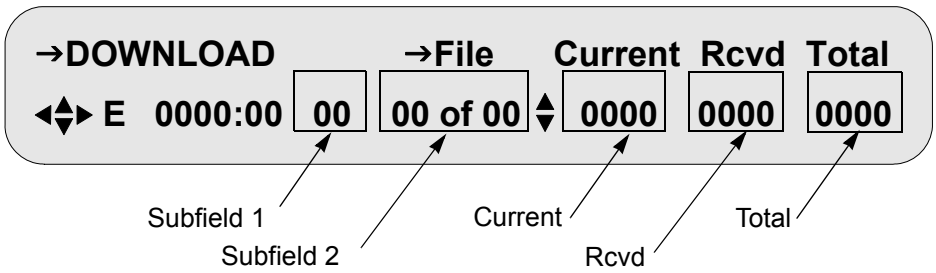
Download Menu

The Download menu allows the user to monitor the status of the current code download. This menu is used most commonly in troubleshooting.

Press the ▲ ▼ buttons until the DOWNLOAD menu appears (shown below).



- During a foreground code download the unit mutes video and audio and ignores user commands. The unit presents this menu during a foreground code download.
- During a background code download the unit collects the upgrade code in the background while concurrently decoding video and audio services. The user can select this menu anytime before, during, and after a background code download.



File Field

The File field consists of two subfields:

- Subfield #1 is editable and selects, by index, a download file for monitoring.
- Subfield #2 is non-editable and indicates the total number of files that have been downloaded and/or are available to be downloaded.

Read-only **Current Field**

The Current field pertains to the file selected in the File field and indicates the ID for the current segment received by the DSR-4550 during the download of the file. This field is non-editable.

Read-only **Rcvd Field**

The Rcvd field indicates ID for the last segment of the file selected in the File field. This field is non-editable.

Read-only **Total Field**

The Total field indicates the number of segments that the DSR-4550 has received for the file selected in the File field. This field is non-editable.

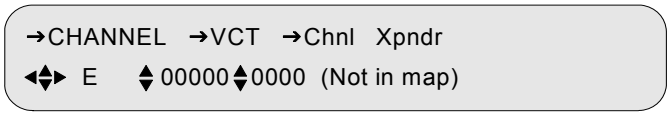
Channel Menus

To access the Channel menus, press ENTER button to return to the main top-level menu (shown below).

Press the ◄ ► buttons until the cursor is at the Channel label, and press the ENTER button to access the main menu for the Channel group and the DSR-4550 displays the first sub-menu within the Channel menus.

Channel Menu

This menu allows the user to select an active VCT, select the virtual channel, and view the name of the current transponder. Press the ▲ ▼ buttons until the Channel menu appears (shown below).



VCT Field

Note: Contact the program provider for the correct VCT number to enter for that commercial system.

This field allows selection of a Virtual Channel Table (VCT) number.

Press the ► button until the cursor is at the VCT label, and press the ENTER button to move into the field. While ensuring that the cursor remains on the up/down symbol, press the ▲ ▼ buttons to scroll throughout the available VCTs.

Note: If the network has four VCTs, then only four VCTs appear in this field.

Press the ENTER button to confirm the selection and exit the field.

There is also a second method for entering the VCT number. Use the ◄ ► buttons to select the digit on the display to change and then, while the cursor is on that digit, press the ▲ ▼ buttons to select the desired value. Repeat this process for each applicable digit to be changed. Press the ENTER button to confirm the selection and exit the field.

Chnl Field

The Chnl (Channel) field allows selection of the virtual channel for the output service. Channels that exist in the Virtual Channel Map appear within parentheses, for example (346). The DSR-4550 supports channel values from 0000 to 9999.

Press the ▸ button until the cursor is at the Chnl label, and press the ENTER button to move into the field. While ensuring that the cursor remains on the up/down symbol, press the ▲ ▼ buttons to scroll throughout the available virtual channels.

Note: If the chosen VCT contains twenty-four virtual channels, then only twenty-four virtual channels appear in this field.

Press the ENTER button to confirm the selection and exit the field.

There is also a second method for entering the virtual channel. Use the ◂ ▸ buttons to select the digit to change and then, while the cursor is on that digit, press the ▲ ▼ buttons to select the desired value. Repeat this process for each applicable digit to be changed. Press the ENTER button to confirm the selection and exit the field.

CAUTION MESSAGES: When selecting/changing the Chnl field, the DSR-4550 displays caution messages under the following three conditions:

- A warning message is displayed when the user changes from a virtual channel to a MPEG program number.

  CAUTION: Changing to DCII selection mode
  Press E to continue or ◂▲▸▼ to stop

  Press any arrow button (◂ ▸ ▲ ▼) to back out of the field and leave it unchanged. Otherwise, press the ENTER button to proceed.

- If the user selects a virtual channel that is not in the chosen VCT, then a message, “Not in map” is displayed to the right of the virtual channel.

  →CHANNEL →VCT →Chnl Xpndr
  ◂▲▸▼ E ▲00000▼ ▲0000▼ (Not in map)

  Then, if the user presses the ENTER button again, another caution message is displayed indicating that the selected channel does not exist.

  CAUTION: Channel 0000 not present
  Press E to continue or ◂▲▸▼ to stop

Note: The caution message shown on the previous page is only displayed when the user changes the channel from a valid virtual channel to a nonexistent virtual channel. This message is not displayed if the DSR-4550 was not already acquired to a virtual channel (e.g., when setting up the DSR-4550 for future operation).

- Virtual channels also identify satellite and polarity attributes. The RF input ports are set up with satellite and polarity attributes. For more details, see "Port Menu" on page 22.

  The DSR-4550 uses these satellite and polarity attributes to determine which RF port to use. However, if the user selects a virtual channel that does not match the satellite and polarity attributes of either port, then the DSR-4550 is unable to determine which port to use and the following caution message is displayed.

  CAUTION: Channel 0000 not on RF input
  Press E to continue or ◄▲▼► to stop

  Press any arrow button (◄ ► ▲ ▼) to back out of the field and leave it unchanged.

Note: The DSR-4550 cannot decode the chosen virtual channel until a port is set up with the applicable satellite and polarity information.

Read-only

Xpndr Field

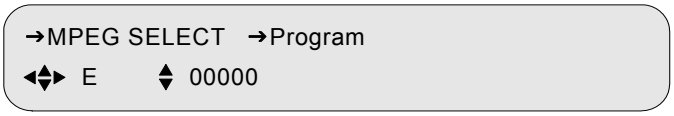
This non-editable field displays the current (Xpndr) transponder name (alpha/numeric) that is downloaded. The DSR-4550 displays dashes (--) when transponder information is not available.

Note: If the user selects a virtual channel that is not in the chosen VCT, then a caution message, "Not in map" is displayed to the right of the virtual channel.

→CHANNEL	→VCT	→Chnl	Xpndr
◄▲▼► E	▲00000▼	▲0000▼	(Not in map)

MPEG Select Menu

This menu allows the user to select which service is displayed at the video and audio outputs by specifying the MPEG program number. Press the ▲ ▼ buttons until the MPEG SELECT menu appears. The MPEG program number can be used instead of a virtual channel, but only if the DSR-4550 is already tuned to the appropriate L-band or ASI input signal.



Program Menu

Press the ▸ button until the cursor is at the Program label, and press the ENTER button to move into the field. While ensuring that the cursor remains on the up/down symbol, press the ▲ ▼ buttons to scroll throughout the available MPEG programs.

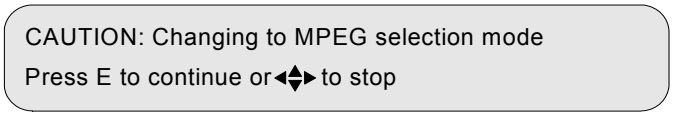
Note: If the current L-band or ASI input signal contains four MPEG programs, then only four MPEG programs appear in this field.

Press the ENTER button to confirm the selection and exit the field.

There is also a second method for entering the MPEG program number. Use the ◂ ▸ buttons to select the digit to change and then, while the cursor is on that digit, press the ▲ ▼ buttons to select the desired value. Repeat this process for each applicable digit to be changed.

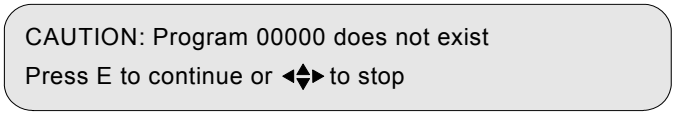
CAUTION MESSAGES: When selecting/changing the MPEG program numbers, the DSR-4550 displays warning messages for the following two conditions:

- A warning message is displayed when the user changes from a virtual channel to a MPEG program number.



  Press any arrow button (◂ ▸ ▲ ▼) to back out of the field and leave it unchanged. Otherwise, press the ENTER button to proceed.

- A warning message displays when an MPEG program number is selected which does not exist.

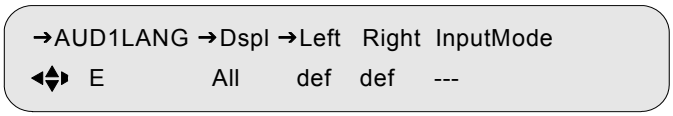


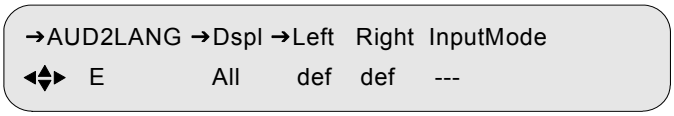
  Press any arrow button (◂ ▸ ▲ ▼) to back out of the field and leave it unchanged. Otherwise, press the ENTER button to proceed.

Aud1Lang, Aud2Lang Menus

These menus (Audio1 and Audio2 Language) have three fields that allow the user to modify and view the status of the language for the Audio1 and Audio2 outputs. This menu also allows the user to view the mode of the audio signal as it is received from the programmer and before any subsequent down mixing that the DSR-4550 may perform.

Press the ▲ ▼ buttons until the Aud1Lang menu or Aud2Lang menu appears (shown below).





Dspl Field **Default: All**

The Display field allows the user to select the options that are displayed in the Left (channel) and Right (channel) fields. Press the ▶ button until the cursor is at the Dspl (Display) label, and press the ENTER button to move into the field. Use the ▲ ▼ buttons to select and display the three options: All, Avail, and Status.

- The All option allows the user to scroll throughout the languages that exist in the database while in the Left and Right fields. You may wish to select languages that are not functional at this time but will be functional in the future, when they are present on the channel.

  Press the ENTER button to confirm the selection.

- The Avail (Available) option allows the user to scroll through the languages supported by the system while the cursor is in the Left and Right fields. Furthermore, selection of this option allows the user to scroll through only the languages available for the active service.

Note: If the active service has only three languages, as listed for the virtual channel or program, only three appear. If the user changes the service, the number of languages may also change.

Press the ENTER button to confirm the selection.

- The Status option allows the user to view the actual audio language. The actual language can differ from the chosen language when the user's choice for language is unavailable. The rules that govern which language the DSR-4550 chooses are described in the next section.

  Press the ENTER button to confirm the selection.

Left and Right Fields **Default: Def**

Note: These fields operate in conjunction with the "Audio1 and Audio2 Menus" on page 24 (specifically the AudioMix field) and the Dspl (Display field) described on page 41.

If the user selects the Dual Mono downmix in the AudioMix field within the "Audio1 and Audio2 Menus" on page 24, the Left and Right channels will have separately editable fields. Otherwise, they are controlled together as a pair from the Left field alone.

The Left and Right fields allow the user to select the language associated with the left/right audio channels. The options are:

- def (for default)
- dashes (-----)
- Alphanumeric character, range aaa00 to zzz99

Use the "Language Abbreviations" on page 69 to find the 3-character abbreviation for the desired language. To enter the alphanumeric character, press the ▸ button until the cursor is at the Left label, and press the ENTER button to move into the field.

Note: The two digits in the Left, Right fields indicate the occurrence of the specified language. The range is between 00 and 99. For example, use eng13 for the 13th version of the English. This feature is used when there are multiple dialects within a language.

Use the ◂ ▸ buttons to select the alphanumeric character to change and then, while the cursor is on that alphanumeric character, press the ▲ ▼ buttons to select the desired alphanumeric character. Repeat this process for each applicable character to be changed.

Press the ENTER button to confirm the entire selection and exit the field.

When making language choices for the Left and Right fields, keep the following factors in mind:

- If Def (default) is selected, the Audio 1 and Audio 2 outputs are set to the first and second language, respectively, that is listed for the service. It is suggested that programmers run their language listing so that this default setting is the language that matches the audio.
- If the AudioMix option (described on page 25) is set to Surround, Stereo, or Mono and the user’s choice for language is not available, then the audio output reverts to the default language. The list of languages are provided on page 69.

- If the AudioMix option (described on page 25) is set to Dual Mono and a language pair is not available that matches the user's choice for Left and Right languages, the DSR-4550 selects and outputs the first occurrence of the Left language choice. The system cannot take a Left from one audio pair and a Right from another. If there is no match for the Left language choice, the DSR-4550 uses the default language setting.
- There is an interaction between the Language (Lang) menu (described on page 41) and the AudioMix field of the Audio menu described under "Audio1 and Audio2 Menus" on page 24:
  - If the user had previously selected Stereo or Mono in the AudioMix field and a specific language as the audio output in the Lang menu, but later changes the AudioMix menu setting to Dual Mono, the Dual Mono changes in this menu to the same language specified for both Dual Mono channels and a caution screen displays. After changing the AudioMix menu to Dual Mono, reselect the languages desired here, in this menu.
  - If the user previously selected Dual Mono in the AudioMix field with two different languages as audio outputs in the Language menu, but later selects Stereo, Stereo Surround, or Mono in the AudioMix field, the output in this Language menu automatically is set to the first occurrence of a specified language (the one defined for the Left channel first, then for Right channel if there is no match for the Left). In this case, the same caution screen appears.

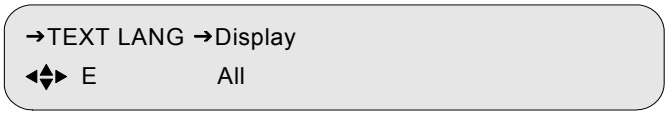
Read-only

InputMode Field

This read-only field indicates the incoming audio signal of the active service.

Text Lang Menu

This Text Language menu has two fields that allow the user to modify and view the status of the language for the subtitle display. Press the ▲ ▼ buttons until the Text Lang (Text Language) menu appears (shown below).



Display Field **Default: Off**

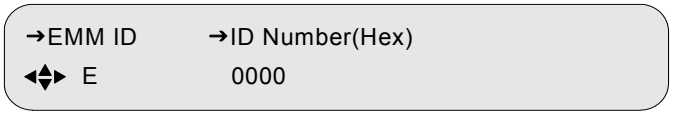
Refer to the Display field description under the Audio1 Language menu on page 41 for the All, Available, and Status options. This field also has a fourth option, Off, which disables subtitles.

EMM ID Menu

The Entitlement Management Message (EMM) ID menu allows for additional flexibility in access control. It allows the user to enter a new EMM provider ID number, when required.

Caution: If the EMM provider ID is not known, use the default setting of zero.

Press the ▲ ▼ buttons until the EMM ID menu appears (shown below).



ID Number Field **Default: 0000**

The ID Number field (range 0000 to FFFF) allows the user to change the EMM ID number, which is represented in the hexadecimal format.

Press the ▶ button until the cursor is at the ID Number label, and press the ENTER button to move into the field. Use the ◀ ▶ buttons to select the digit to change and then, while the cursor is on that digit, press the ▲ ▼ buttons to display the desired value. Repeat this process for each applicable digit.

Press the ENTER button to confirm the selection.

Checking Status of Channel

Once a channel is set up, the user can verify the status of the channel. To do this, access the Status Display menus by pressing the ENTER button to return to the DSR-4550's main top-level menu (shown below).

Press the ◀ ▶ buttons until the cursor is at the Status label, and press the ENTER button. The DSR-4550 now displays the Status1 menu. Refer to "Status Display Menus" on page 50 for more information on each of the display screens.

IP Menus

Use the IP menus is to configure the 10/100 port. To access the IP menus, press ENTER button to return to the main top-level menu (shown below).

```
                DSR-4550
◂ ▸ E  →Install →Channel →IP →Status →Diag
```

Press the ◂ ▸ buttons until the cursor is at the IP label, and press the ENTER button. The DSR-4550 displays the first sub-menu within the IP menus.

Read-only

MAC Address Menu

To view the MAC address for the lower Ethernet port on the back panel of the DSR-4550, press the ▲ ▼ buttons until the MAC Address menu appears (shown below). The address is represented in a hexadecimal format and non-editable.

```
→PORT 10/100      MAC Address
▲▼ E              hh-hh-hh-hh-hh-hh
```

IP Address Menu

Use the following procedure to set and view the IP address (range: 000.000.000.000 to 255.255.255.255) for the lower Ethernet port on the back panel of the DSR-4550. The address is represented in the common dotted-decimal format. Contact the network administrator for details about configuring the Ethernet port for operation on your local network.

Press the ▲ ▼ buttons until the IP Address menu appears (shown below).

```
→PORT 10/100      →IP Address
◂▲▼▸ E              192.168.000.100
```

Important: Do not configure the IP Address of the 10/100 and GigE to be on the same subnet.

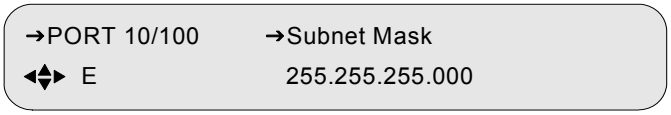
To change the IP address, press the ▸ button until the cursor is at the Address label, and press the ENTER button to move into the field. Use the ◂ ▸ buttons to select the digit to change and then, while the cursor is on that digit, press the ▲ ▼ buttons to display the desired value. Repeat this process for each applicable digit to be changed.

Press the ENTER button to confirm the selection and exit the field.

Subnet Mask Menu

Use the following procedure to set and view the Subnet Mask IP address (range: 000.000.000.000 to 255.255.255.255) for the lower Ethernet port on the back panel of the DSR-4550. The subnet mask is represented in the common dotted-decimal format. Contact the network administrator for details about configuring the Ethernet port for operation on your local network.

Press the ▲ ▼ buttons until the Subnet Mask menu appears (shown below).



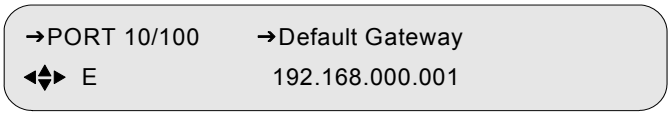
To change the Subnet Mask, press the ▶ button until the cursor is at the Subnet Mask label, and press the ENTER button to move into the field. Use the ◀ ▶ buttons to select the digit to change and then, while the cursor is on that digit, press the ▲ ▼ buttons to display the desired value. Repeat this process for each applicable digit to be changed.

Press the ENTER button to confirm the selection and exit the field.

IP Gateway Menu

Use the following procedure to set and view the IP Gateway address (range: 000.000.000.000 to 255.255.255.255) for the lower Ethernet port on the back panel of the DSR-4550. The IP Gateway is an address that is represented in the common dotted-decimal format. Contact the network administrator for details about configuring the Ethernet port for operation on your local network.

Press the ▲ ▼ buttons until the IP Gateway menu appears (shown below).



To change the IP Gateway, press the ▶ button until the cursor is at the Default Gateway label, and press the ENTER button to move into the field. Use the ◀ ▶ buttons to select the digit to change and then, while the cursor is on that digit, press the ▲ ▼ buttons to display the desired value. Repeat this process for each applicable digit to be changed.

Press the ENTER button to confirm the selection and exit the field.

GigE Menus

Use the GigE menus is to configure the GigE port. To access the GigE menus, press ENTER button to return to the main top-level menu (shown below).

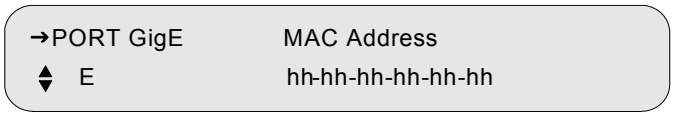
Press the ◄ ► buttons until the cursor is at the IP label, and press the ENTER button. The DSR-4550 displays the first sub-menu within the IP menus. Follow the procedures provided to access the various GigE menus within the IP menu structure.

Read-only

GigE MAC Address Menu

Use the following procedure to view the GigE MAC address for the upper Ethernet port on the back panel of the DSR-4550. The GigE MAC address is represented in a hexadecimal format and non-editable.

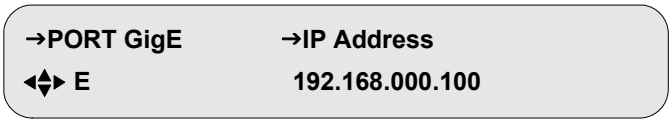
Press the ▲ ▼ buttons until the Port GigE menu appears (shown below).



GigE IP Address Field

Use the following procedure to set and view the GigE IP address (range: 000.000.000.000 to 255.255.255.255) for the upper Ethernet port on the back panel of the DSR-4550. The address is represented in the common dotted-decimal format. Contact the network administrator for details about configuring the GigE port for operation on your local network.

Press the ▲ ▼ buttons until the GigE IP Address menu appears (shown below).



Press the ► button until the cursor is at the Address label, and press the ENTER button to move into the field. Use the ◄ ► buttons to select the digit to change and then, while the cursor is on that digit, press the ▲ ▼ buttons to display the desired value. Repeat this process for each applicable digit to be changed.

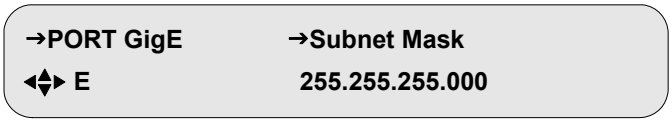
Important: Do not configure the IP Address of the 10/100 and GigE to be on the same subnet.

Press the ENTER button to confirm the selection and exit the field.

GigE Subnet Mask Menu

Use the following procedure to set and view the GigE Subnet address (range: 000.000.000.000 to 255.255.255.255) for the upper Ethernet port on the back panel of the DSR-4550. The GigE subnet mask is represented in the common dotted-decimal format. Contact the network administrator for details about configuring the GigE port for operation on your local network.

Press the ▲ ▼ buttons until the GigE Subnet Mask menu appears (shown below).



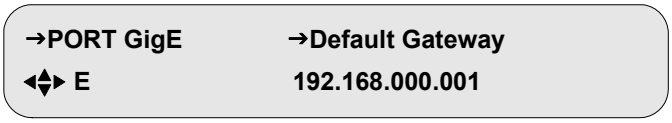
Press the ▶ button until the cursor is at the Subnet Mask label, and press the ENTER button to move into the field. Use the ◀ ▶ buttons to select the digit to change and then, while the cursor is on that digit, press the ▲ ▼ buttons to display the desired value. Repeat this process for each applicable digit to be changed.

Press the ENTER button to confirm the selection and exit the field.

GigE Default Gateway Menu

Use the following procedure to set and view the GigE Default Gateway address (range: 000.000.000.000 to 255.255.255.255) for the upper Ethernet port on the back panel of the DSR-4550. The GigE Default Gateway is an address that is represented in the common dotted-decimal format. Contact the network administrator for details about configuring the GigE port for operation on your local network.

Press the ▲ ▼ buttons until the GigE Default Gateway Address menu appears (shown below).



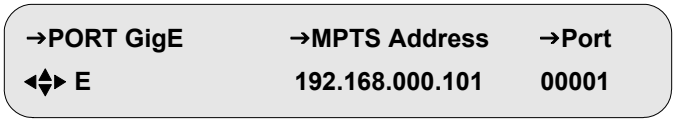
Press the ▶ button until the cursor is at the Default Gateway label, and press the ENTER button to move into the field. Use the ◀ ▶ buttons to select the digit to change and then, while the cursor is on that digit, press the ▲ ▼ buttons to display the desired value. Repeat this process for each applicable digit to be changed.

Press the ENTER button to confirm the selection and exit the field.

GigE MPTS Address Menu

Use the following procedure to set and view the GigE Multiple Program Transport Stream (MPTS) address and port of the destination node for the transport stream output. The GigE MPTS is an address that is represented in the common dotted-decimal format. Contact the network administrator for details about configuring the GigE port for operation on your local network.

Press the ▲ ▼ buttons until the GigE MPTS Address menu appears (shown below).



MPTS Address Field

Press the ▶ button until the cursor is at the MPTS Address label, and press the ENTER button to move into the field. The MPTS Address range is from 000.000.000.000 to 255.255.255.255.

Use the ◀ ▶ buttons to select the digit to change and then, while the cursor is on that digit, press the ▲ ▼ buttons to display the desired value. Repeat this process for each applicable digit to be changed.

Press the ENTER button to confirm the selection and exit the field.

Port Field

Press the ▶ button until the cursor is at the Port label, and press the ENTER button to move into the field. The Port ID range is from 00000 to 65535.

Use the ◀ ▶ buttons to select the digit to change and then, while the cursor is on that digit, press the ▲ ▼ buttons to display the desired value. Repeat this process for each applicable digit to be changed.

Press the ENTER button to confirm the selection and exit the field.

Status Display Menus

Note: Some of the status screens are not displayed when the active signal is received from a source other than the L-band input connector.

Status display menus provide information regarding the current status of the DSR-4550. This menu lists important IRD parameters. These fields are not editable, and the displayed information is either:

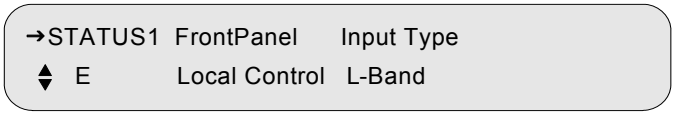
- The result of changes in an installation or channel selection menu.
- A parameter the DSR-4550 reports as part of its operation.

To access the Status Display menus, press ENTER button to return to the main top-level menu (shown below).

Press the ◄ ► buttons until the cursor is at the Status label, and press the ENTER button. The DSR-4550 displays the first sub-menu within the Status menus.

Status1 Menu

Press the ▲ ▼ buttons until the Status1 menu appears (shown below).



Read-only **FrontPanel Field** **Default: Local Control**

The Front Panel field indicates whether the user is able to control the IRD completely from the front panel (Local Control) or whether some front panel functions are disabled (Locked Out).

Read-only **Input Type Field** **Default: L-Band**

The Input Type field indicates the input connector (L-band or ASI) on which the active signal is received.

Status2 Menu

Note: This menu is not displayed when the active signal is received from a source other than the L-band input connector.

Press the ▲ ▼ buttons until the Status2 menu appears (shown below). This screen displays the source name, channel number, and the signal quality.

Read-only **Source Field** **Default: Not in map**

The Source field (two to eight alphanumeric characters) displays the name of the transponder (source) to which the unit is tuned. The IRD displays Not in map when the transponder name is not available and three dashes (---) are displayed when no information is available.

Read-only **Channel Field**

The Channel field displays the selected virtual channel number (from the Channel menu on page 37). The range is 0000 to 4095. Four dashes (----) are displayed when no information is available.

Read-only **Quality Field**

The Quality field displays a number from 1 to 100 indicating the level of the signal quality. If the signal is 50 or less, it is marginal. If it is 35 or less, take action to increase the dish size or improve the reception by the LNB to prevent occasional loss of output.

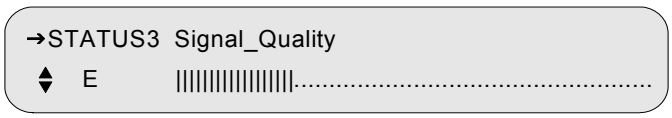
Note: The signal quality is also displayed as a large bar graph in the Status3 menu.

Read-only

Status3 Menu

Note: This menu is not displayed when the active signal is received from a source other than the L-band input connector.

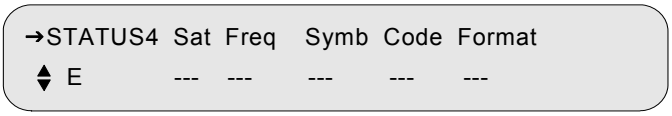
Press the ▲ ▼ buttons until the Status3 menu appears (shown below). This screen displays the quality level of the active signal received from the L-band source and is shown as a large bar graph that expands to fill the entire LCD screen.



Status4 Menu

Note: This menu is not displayed when the active signal is received from a source other than the L-band input connector.

Press the ▲ ▼ buttons until the Status4 menu appears (shown below). This screen displays the satellite name and signal tuning characteristics and provides mode-specific information depending upon the acquisition mode selected (i.e., DCII-AUTO, DCII-MAN, DVB-MAN, etc.).



Read-only **Sat Field**

This field displays the satellite reference name (two to four alphanumeric characters) from the downloaded network information. Three dashes (---) are displayed when no information is available.

Read-only **Freq Field**

This field displays the downlink frequency (range: 950.00 - 2150.00 MHz) of the L-band signal. This may be different from the frequency that was initially set in the Manual Tune menu. Three dashes (---) are displayed when no information is available or that the ASI input is in use.

Read-only **Symb Field**

This field displays the symbol rate (megasymbols per second) of the L-band signal based on the received signal. Three dashes (---) indicate that no information is available or when the ASI input is in use.

Read-only **Code Field**

This field displays the code rate (error control coding for forward error correction) of the received L-band signal. Three dashes (---) indicate that no information is available or the ASI input is in use.

Read-only **Format Field**

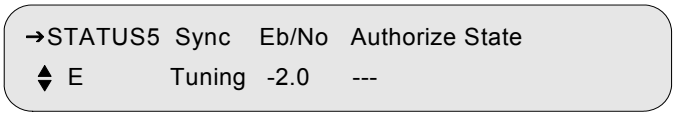
Note: This field is excluded from the status display screen when the acquisition selection mode (see "Modulation Menu" on page 21) is DCII-DVB.

This field displays the format (combined or split) of the L-band signal. Three dashes (---) are displayed when no information is available or when the ASI input is in use.

Status5 Menu

Note: This menu is not displayed when the active signal is received from a source other than the L-band input connector.

Press the ▲ ▼ buttons until the Status5 menu appears (shown below). This screen displays the sync status, Eb/No (signal to noise ration) and authorization state of the DSR-4550.



Read-only

Sync Field

This field displays the acquisition Sync state. The Sync state for the active L-band signal is either Paused, Tuning, or Locked. The unit presents Paused for sync state 0-2, Tuning for sync state 3-4, and Locked for sync state 5-9. Three dashes (---) indicate that no information is available.

Read-only

Eb/No Field

This field displays the Signal to Noise Ration (Eb/No (for the active L-band signal. Three dashes (---) indicate that no information is available

Read-only

Authorize State Field

This field displays the authorization state (either Authorized or Not Authorized). If the Authorization State is shown as Not Authorized, the field alternately flashes and displays the reason why it is not authorized (i.e., Missing Map, Undefined Channel, Undefined Service, Not In Sync, No Program Rekey, No Working Key, No Event Blackout, No Category Key, Old Category Seq, Subscrb With Tape, Subscrb w/o Tape, Bad Seed Chksum, Bad Debit Chksum, Not Subscribed, Regional Blackout, or Circular Blackout.

Three dashes (---) indicate that no information is available.

Status6 Menu

Press the ▲ ▼ buttons until the Status6 menu appears (shown below). This screen displays the DSR-4550's Memory (free memory) and Flash memory.

```
→STATUS6  Memory  Flash
 ▲▼ E      42.9MB  47.8MB
```

Read-only

Memory Field

This status-only field displays the amount of free volatile memory (range: 00.0 to 99.9 MB) that is available for use by the operating system.

Read-only

Flash Field

This status-only field displays the amount of free non-volatile memory (range: 00.0 to 99.9 MB) that is available for use by the operating system.

Status7 Menu

Press the ▲ ▼ buttons until the Status7 menu appears. This screen displays the DSR-4550's IP Data, Isochronous Data, and Asynchronous Data.

```
→STATUS7   IP Data     Isoc Data   Async Data
 ▲▼ E      Undefined   Undefined   Undefined
```

Read-only

IP Data Field

This status-only field indicates (either Undefined or Defined) whether the Program Map Table (PMT) for the current service contains an entry for a DSM-CC component.

Read-only

Isoc Data Field

This status-only field indicates (either Undefined or Defined) whether the Program Map Table (PMT) for the current service contains an entry for an isochronous data component.

Read-only

Async Data Field

This status-only field indicates (either Undefined or Defined) whether the Program Map Table (PMT) for the current service contains an entry for an asynchronous data component.

Diagnostics Menus

The DSR-4550's diagnostic menus allow the user to isolate problems to the DSR-4550 or the satellite using the front panel. The menus also enable the user to test waveforms and use other diagnostic information displayed on an NTSC television monitor connected through the rear-panel video output.

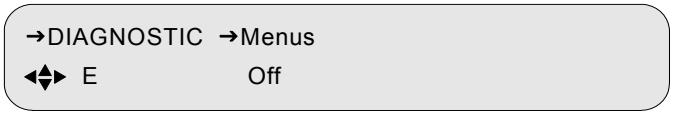
Caution: Turning on diagnostics changes the video or audio output, and these diagnostic screens or tones may be transmitted to the cable customers if the receiver is connected to the cable plant.

To access the Diagnostic menus, press ENTER button to return to the main top-level menu (shown below).

Press the ◂ ▸ buttons until the cursor is at the Diag label, and press the ENTER button. The DSR-4550 displays the first sub-menu within the Diagnostics menus.

Diagnostics Menu

Press the ▲ ▼ buttons until the Diagnostics menu appears (shown below).



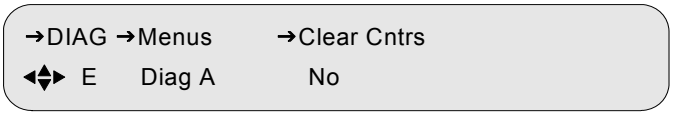
Menus Field

The Menus field allows the user to enable or disable the on-screen diagnostics to a video monitor connected to the rear of the IRD.

Note: For more information on the diagnostic screens, refer to"Viewing the Fast Fact Diagnostic Screens" on page 72.

Press the ▸ button until the cursor is at the Menus label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to scroll to the televised screen of choice (i.e., Off, Fact 1-5; Diag A-E). Press the ENTER button to confirm the selection and exit this field.

Note: The Diag A-E are typically used by Technical Support.



Clear Cntrs Field

Note: If a diagnostic menu other than Off is selected, the Clear Cntrs (clear counters) field also appears. This field is primarily for use with hotline troubleshooting, and it is recommended that it be used only when so directed and does not affect receiver operation, but it may give misleading troubleshooting results

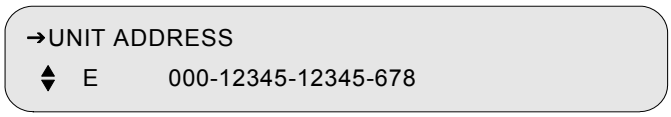
This field allows the user to reset selected counters to zero. To clear counters, press the ▸ button until the cursor is at the Cntrs label, and press the ENTER button to reset the counters to zero.

Read-only

Unit Address Menu

This menu is for display only and displays the DSR-4550's 16-digit electronic address (range: 000-00000-00000-000 to 999-99999-99999-999). The program provider uses this address to identify a specific DSR-4550 for authorization and to retune messages. The display enables the user to view the address from the front panel rather than reading the label on the back panel.

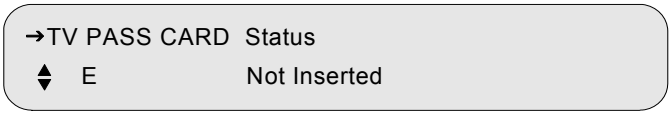
Press the ▲ ▼ buttons until the Unit Address menu appears (shown below).



TVPass Card Menu

The DSR-4550 does not initially require a TV Pass Card, but if one is required, the program provider typically supplies one. The program provider uses the TV Pass Card address and decoder address to identify a specific DSR-4550 for authorization messages.

Press the ▲ ▼ buttons until the TV Pass Card menu appears (shown below).

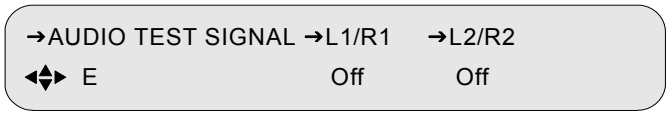


The display enables the user to view the TV Pass Card address from the front panel of the DSR-4550. There are three Status field options:

- Not Inserted
- xxx-xxxxx-xxxxx-xxx (a unique TV Pass Card address, range: 000-00000-00000-000 to 999-99999-99999-999)
- xxx-xxxxx-xxxxx-xxx Needs Mating.

Audio Test Signal Menu

This menu allows the user to select an audio test signal for each of the two audio outputs, Audio1 and Audio2. Press the ▲ ▼ buttons until the Audio Test Signal menu appears (shown below).



L1/R1 Field **Default: Off**

Caution: Audio output to the customers may be interrupted and test signals override any active service component.

This field allows the user to enable the Audio1 test signal. Press the ▶ button until the cursor is at the L1/R1 label. Press the ENTER button to enter the field. Use the ▲ ▼ buttons to display the three test options:

- Off
- 1000 Hz at +16 dBm
- 4040 Hz and 3960 Hz at +4 dBm

To terminate an audio test signal, use the ▲ ▼ buttons to select Off and press the ENTER button, or exit the L1/R1 field.

L2/R2 Field **Default: Off**

Caution: Audio output to the customers may be interrupted and test signals override any active service component.

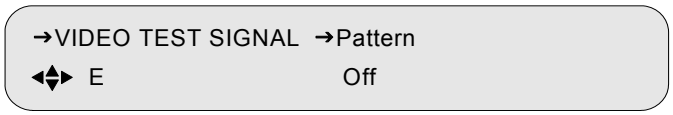
This field allows the user to enable the Audio 2 test signal. Press the ▶ button until the cursor is at the L2/R2 label. Press the ENTER button to enter the field. Use the ▲ ▼ buttons to display the three test options:

- Off
- 1000 Hz at +16 dBm
- 4040 Hz and 3960 Hz at +4 dBm

To terminate an audio test signal, use the ▲ ▼ buttons to select Off and press the ENTER button, or exit the L2/R2 field.

Video Test Signal Menu

A full-field video test signal is available and the user can display different test patterns by selecting the Pattern field. Press the ▲ ▼ buttons until the Video Test Signal menu appears (shown below).



Pattern Field **Default: Off**

Press the ▶ button until the cursor is at the Pattern label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the video test patterns. Choose from the options listed in Table 3-1.

Table 3-1: NTSC/PAL M Video Test Options

PATTERNS
Off (Default)
Color Bar
100 IRE Ramp
NTSC 7 Composite
Red Field
5 Step Stair
Unmod Y Ramp
525 Composite/625 CCIR 17
525 Combination/625 CCIR 18
525 Color Bar/625 CCIR 330
525 Y Ramp/625 CCIR 331
Program (Off)

Press the ENTER button and a warning message appears saying that the current video display will be interrupted if the action proceeds.

Press any arrow button (◀ ▶ ▲ ▼) to back out of the field and leave it unchanged. Otherwise, press the ENTER button to proceed.

Note: Test signals override any active service component, and the DSR-4550 displays diagnostics over the video test patterns if diagnostics are enabled.

To disable the selected signals use the ▲ ▼ buttons to select Off and press the ENTER button, or exit the field.

VITS Menu

This menu allows the user to insert VITS on lines 17 or 18. Press the ▲ ▼ buttons until the Vertical Interval Test Signal (VITS) menu appears (shown below).

Waveform Field **Default: Transmitted**

Note: Upon exiting this submenu, the Waveform field reverts to the default value (Transmitted).

The Waveform field allows the user to insert a VITS from several internally stored patterns, from a pattern transmitted over the satellite link, or to turn off VITS insertion.

Press the ▶ button until the cursor is at the Waveform label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the options. Choose from the options listed in Table 3-2.

Table 3-2: NTSC/PAL M VITS Field Options

PATTERNS
Transmitted (Default)
Disabled
Color Bar
100 IRE Ramp
NTSC 7 Composite
Red Field
5 Step Stair
Unmod Y Ramp
525 Composite/625 CCIR 17
525 Combination/625 CCIR 18
525 Color Bar/625 CCIR 330
525 Y Ramp/625 CCIR 331

The Transmitted option indicates the signal is provided over the satellite link by the programmer, if one is present. Press the ENTER button to confirm the selection.

Note: If the Waveform option is neither Transmitted or Disabled, the Field and Line fields are displayed on the VITS menu (shown below).

Field Field **Default: 1**

Note: The IRD does not display this field when the waveform is set to Transmitted or Disabled.

The Field field allows the user to select the field on which the VITS is reinserted by the receiver. Press the ▸ button until the cursor is at the Field label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to select the desired option (Field 1 or Field 2) and press the ENTER button to confirm the selection and exit the field.

Line Field **Default: 17**

Note: The IRD does not display this field when the waveform is set to Transmitted or Disabled.

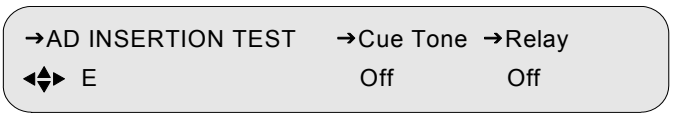
Press the ▸ button until the cursor is at the Line label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the options (17 or 18). Press the ENTER button to confirm the selection and exit the field.

Ad Insertion Test Menu

The Ad Insertion Test menu allows the user to turn cue tones and the relays on and off. Ad insertion signals are generated by the DSR-4550, but controlled by the uplink programmer. Local cable companies use ad insertion signals to control and to queue the insertion of commercials in cable headends. There are two ways to provide ad insertion:

- A dedicated digital DTMF differential output for cue tones.
- A dedicated contact closure relay.

Press the ▲ ▼ buttons until the Ad Insertion Test menu appears (shown below).



Caution: Output to the customers may be interrupted. When turned on, the ad insertion signals can be sent to the local headend equipment.

Cue Tone Field **Default: Off**

The Cue Tone field lets the user turn the cue tone test ON and OFF. Press the ▶ button until the cursor is at the Cue Tone label, and press the ENTER button to move into the field. Press the ▲ ▼ buttons to display the options (On or Off).

If On is selected, the DSR-4550 generates a Dual-Tone Multi-Frequency (DTMF) code (0-9*#ABCD) on the cue tone output. This test keeps repeating until the Off option is selected or the ENTER button is pressed to exit the field.

Relay Field **Default: Off**

The Relay field lets the user individually turn On and Off each of the three ad insertion relays. Press the ▶ button until the cursor is at the Relay label, and press the ENTER button to move into the field.

Press the ▲ ▼ buttons to display the options: Off, Relay 1 On, Relay 2 On, and Relay 3 On. This field returns to the default value (Off) when the ENTER button is pressed to exit the field.

Troubleshooting

Before contacting the Hotline, review Table 4-1 for problems and suggested solutions.

Table 4-1: Troubleshooting Solutions

Problem	Possible Cause	Solution	Reference
LCD blank, no LEDs lit	No power to unit.	Plug in the unit	
LEDs illuminate, but LCD is blank or too dark to read	LCD contrast out of adjustment	Adjust LCD contrast	See how to set the Contrast Field on page 31.
No picture, no level indication	No LNB signal port	Connect LNB coax	See "Connecting the DSR-4550" on page 5.
Poor audio quality or low audio level	Audio levels incorrect	Adjust audio levels	See "Audio1 Gain and Audio2 Gain Menus" on page 26.
No video or Bypass Video is present	Unit is in bypass mode	Change to an available channel	See "Channel Menus" on page 37.
No audio or Bypass Audio is present	Unit is in bypass mode	Change to an available channel	See "Channel Menus" on page 37.
Will not acquire	Port not configured	Check port configuration and manual frequency tune	See "Port Config Menu" on page 24.
Incorrect language displays for subtitles	Wrong language setting	Check subtitle language settings	See "Text Lang Menu" on page 43.
Incorrect Audio language	Wrong language setting	Check audio language settings	See "Aud1Lang, Aud2Lang Menus" on page 41.

5

Downlink/L-band Frequency Conversion Tables

A distributor or programmer can provide the latest L-band frequency plans at purchase time. Use the following formulas to perform calculations for both C-band and Ku-band transponders, or for installing a new satellite.

Table 5-1: Calculation for C-Band Transponders (Using 3,740 MHz Downlink Frequency)

Formula for converting a C-band Frequency to an L-band Frequency	Example calculation if downlink frequency is 3,740 MHz
5,150 MHz <minus> Frequency Downlink (DL) <equals> Frequency (L-band)	5,150 MHz -3,740 MHz 1,410 MHz

Table 5-2: Calculation for Ku-Band Transponders (Using 12,019 MHz Downlink Frequency)

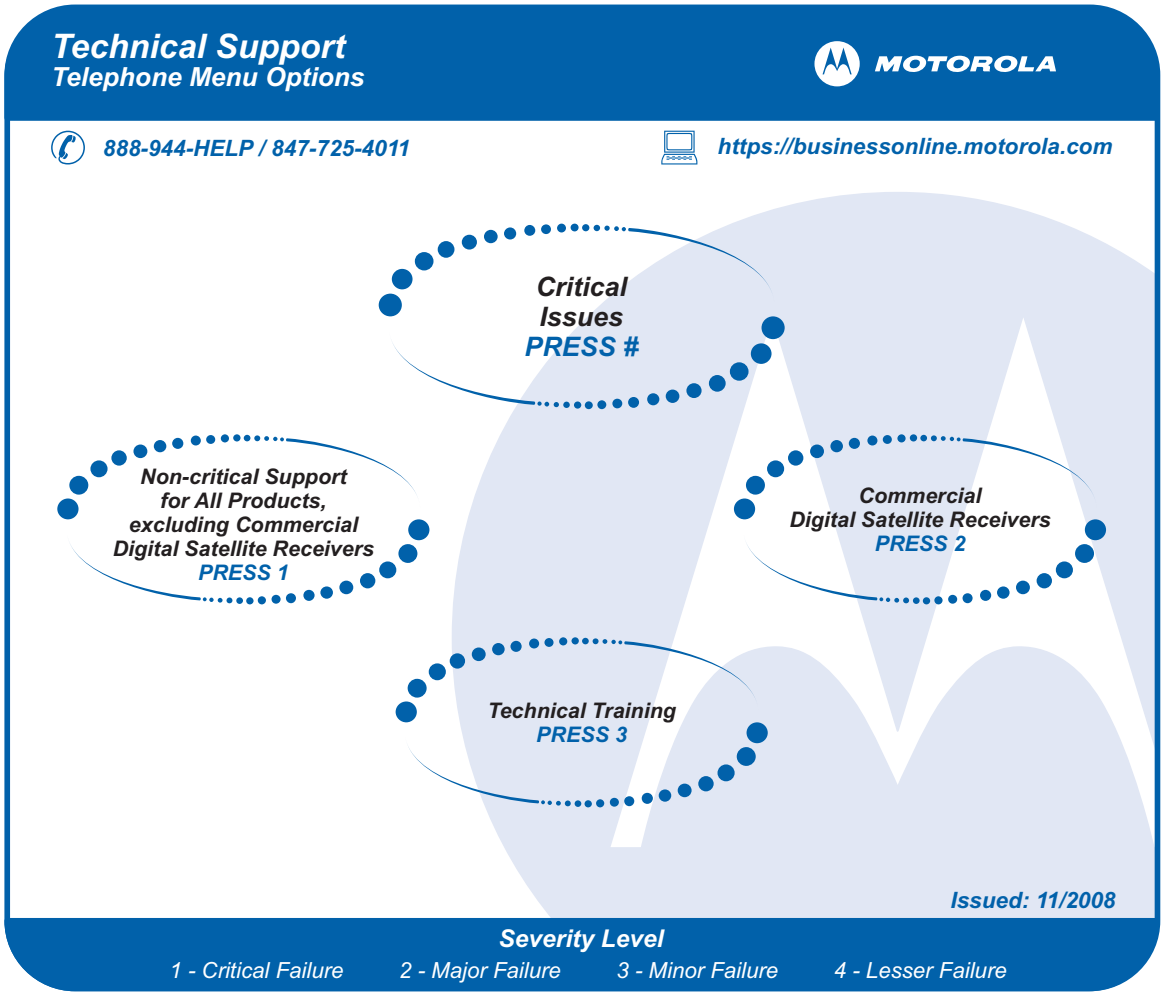
Formula for converting a Ku-band Frequency to an L-band Frequency	Example calculation if downlink frequency is 12,019 MHz
Frequency Downlink (DL) <minus> 10,750 MHz <equals> Frequency (L-band)	12,019 MHz -10,750 MHz 1,269 MHz

6

Product Support

If You Need Help

For assistance with Motorola Mobility products, contact Motorola Technical Support, 24 hours a day, 7 days a week.



Calling for Repairs

If repair is necessary, call Motorola Mobility's authorized repair vendor, World Wide Digital at 1-800-227-0450 or 1-956-541-0600 for shipping address and a Return for Service Authorization (RSA) number before sending the unit for repair. The RSA number must be prominently displayed on all equipment cartons and shipping label. World Wide Digital is open from 8:00 AM to 5:00 PM Central Time, Monday through Friday.

When shipping equipment for repair, follow these steps:

1. Pack the unit securely.
2. Enclose a note describing the exact problem.
3. Enclose a copy of the invoice to verify the warranty status.
4. Label all cartons and shipping labels with the RSA number.

7

Language Abbreviations

Note: This list of languages was recommended to system operators as the appropriate identifiers for audio, subtitle, and text information. Refer to "Text Lang Menu" on page 43.

Language	Abbreviation
Arabic	ara
Armenian	arm
Balinese	ban
Basque	Baq
Batak (Indonesian)	btk
Bengali	ben
Bhojpuri	bho
Bulgarian	bul
Burmese	bur
Catalan	cat
Chinese	chi
Croatian	scr
Cue (Tones)	cue
Czech	cze
Danish	dan
Dutch	dut
Irish	iri
Italian	ita

Language	Abbreviation
Egyptian	egy
English	eng
Esperanto	epo
Faroese	fao
Finnish	fin
French	fre
German	ger
Greek	gre
Gujarati	guj
Hebrew	heb
Hindi	hin
Hiri Motu	hmo
Hungarian	hun
Indonesian	ind
Interlingua	ina
Iranian	ira
Philippine (Other)	phi
Polish	pol

Language	Abbreviation
Panjabi	pan
Japanese	jpn
Javanese	jav
Kashmiri	kas
Korean	kor
Kurdish	kur
Latin	lat
Malay	may
Mandar	mdr
Marathi	mar
Miscellaneous	mis
Mongolian	mon
Nepali	nep
Norwegian	nor
Otomian Lang.	oto
Pahlavi	pal
Persian	per

Language	Abbreviation
Portuguese	por
Rajasthani	raj
Romanian	rum
Russian	rus
Samoan	smo
Scots	sco
Sindhi	snd
Spanish	spa
Swahili	swa
Swedish	swe
Tagalog	tgl
Tamil	tam
Thai	tha
Urdu	urd
Vietnamese	vie
Welsh	wel

Diagnostics

Introduction

The Fast Fact Diagnostic screens (1 through 5) are a part of the IRD firmware created during product development and based on the needs of the particular unit. All values and information shown on the Fast Fact Diagnostic screens updates when displayed, unless otherwise noted. Information about these screens is described here for documentation purposes only.

Notes:

1. *Hexadecimal numbers are displayed with none or more leading zeros (0) to pad to their individual field width.*
2. *Decimal numbers are right-justified in their individual display rectangle and are not padded with leading zeros (0).*
3. *Decimal numbers may be displayed without or with a trailing decimal point to distinguish them from hexadecimal numbers.*
4. *The default is no trailing decimal point.*

Viewing the Fast Fact Diagnostic Screens

The diagnostic screens (Figure 8-1) are available via the On-Screen Display (OSD) video out using a video monitor connected to the OSD Video Out on the rear of the IRD.

To view the OSD diagnostic screens, press the ▲ ▼ buttons on the front of the IRD until the Diagnostic menu appears, and press the ENTER button to access the Diagnostic menu on the IRD (shown below).

```
→DIAGNOSTIC
◄▲▼► E
```

Press the ▲ ▼ buttons, navigate to the DIAGNOSTIC Menus option, and press the right arrow key. Selecting ENTER while the cursor is on the Menus option allows access to the OSD diagnostic screens.

```
→DIAGNOSTIC →Menus
◄▲▼► E          Off
```

Use the ▲ ▼ buttons on the front of the IRD to navigate between the Fast Fact Diagnostic screens while displaying the data to the OSD.

Note: Pressing the ENTER button on the front of the IRD while viewing a particular OSD diagnostic screen allows for the continued display of the OSD diagnostic information while allowing the user to navigates thru other front panel menus.

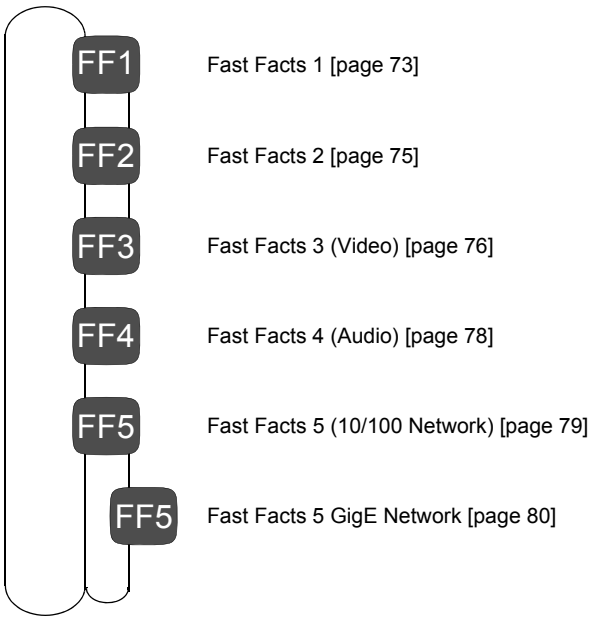


Figure 8-1: Fast Fact Diagnostic Screens

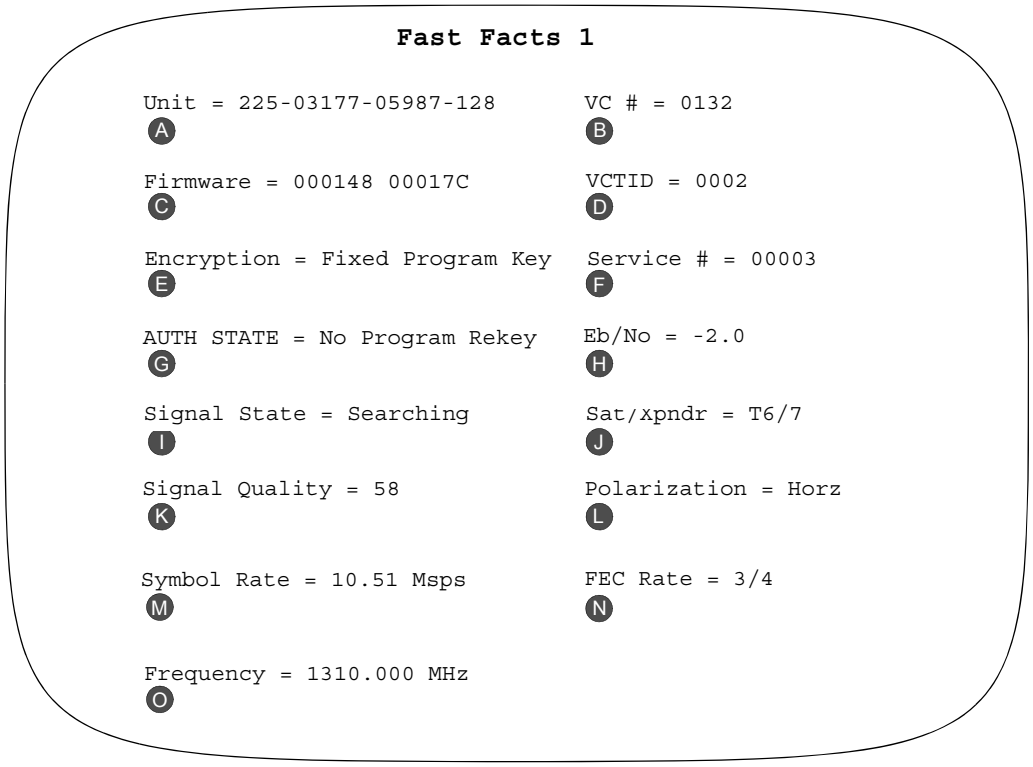
Fast Facts Screens

The Fast Facts screens are used as a method of viewing information and diagnostic data associated with the IRD than what is shown in the IRD's Diagnostic menu screens (refer to "Diagnostics Menus" on page 55).

The Fast Facts screens are composed of five screens; the first screen showing important general information as it relates to the IRD, the second screen depicts the current port configuration, the third screen shows important video information, the fourth screen displays important audio information, and the fifth screens shows the Ethernet configuration.

Fast Facts 1

The Fast Facts 1 screen displays general information relating to the basic functionality of the IRD.

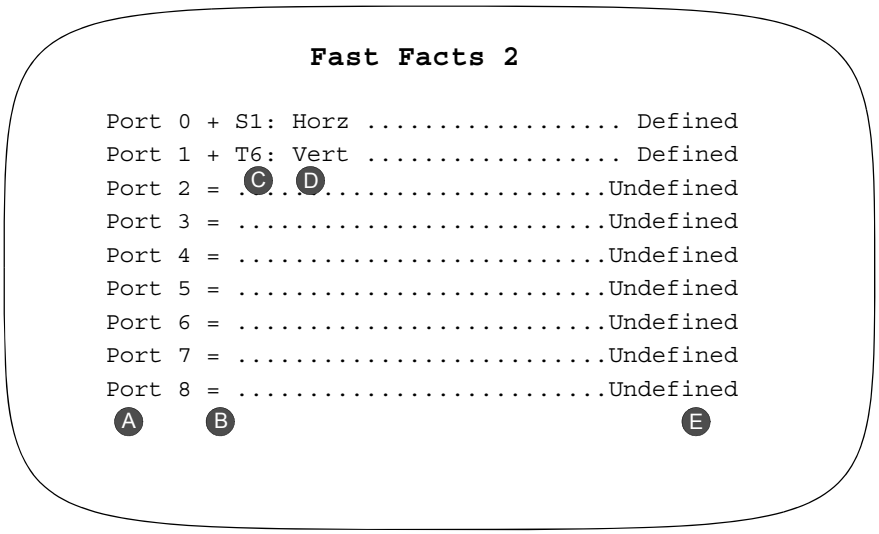


Field	Name	Definition
A	Unit	Factory-set, 16-digit Unit Address for the IRD.
B	VC#	Shows the virtual channel number.
C	Firmware	Shows the firmware version in the boot sector of ROM and the application section.

Field	Name	Definition
D	VCT ID	Shows the current VCT ID.
E	Encryption	Displays the current program's encryption status.
F	Service	Displays the service number for the current program.
G	Auth State	Displays the current program's authorization status.
H	Eb/No	Shows the signal to noise ratio (Eb/No) of the received signal.
I	Signal State	Shows the received signal state, either Locked or Searching, depending on whether the IRD is locked to a signal or not.
J	Sat/Xpndr	Displays the satellite name and transponder number. If the satellite name is null, then the satellite number is used.
K	Signal Strength	Displays the signal strength for the currently tuned-to satellite and transponder. This value is normalized to be between 0 and 100%.
L	Polarization	Shows the polarization for the currently tuned-to transponder, either: Horz : Horizontal Vert : Vertical
M	Symbol Rate	Shows the current symbol rate.
N	FEC Rate	Displays the Forward Error Correction (FEC) coding rate.
O	Frequency	Shows the current RF frequency.

Fast Facts 2

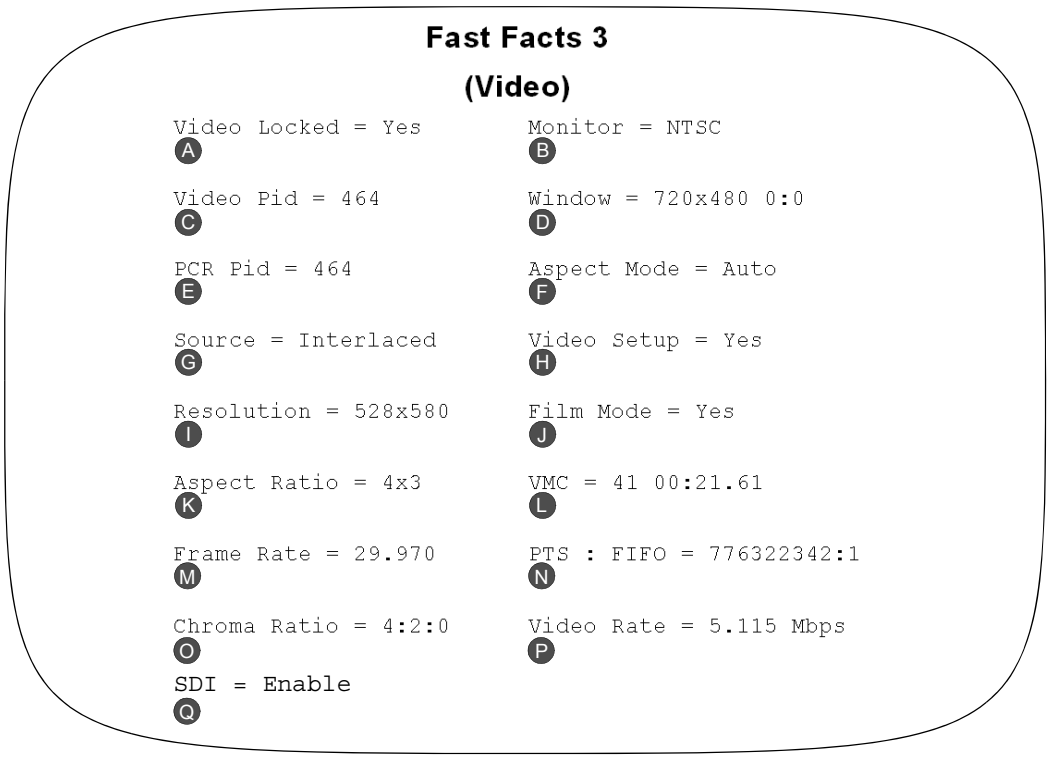
The Fast Facts 2 screen displays information relating to the port configuration of the IRD.



Field	Name	Definition
A	Port number	The port number being described (1-8).
B	Active Status	+ : Indicates the port is Active. = : Indicates the port is Inactive.
C	Satellite Name	The name of the current satellite.
D	Polarization	The polarity transponder associated with the port, either: Horz : Horizontal Vert : Vertical
E	Configuration Status	The configuration status of the port, either: Defined, Undefined or Not Supported.

Fast Facts 3

The Fast Facts 3 screen displays information relating to video information.

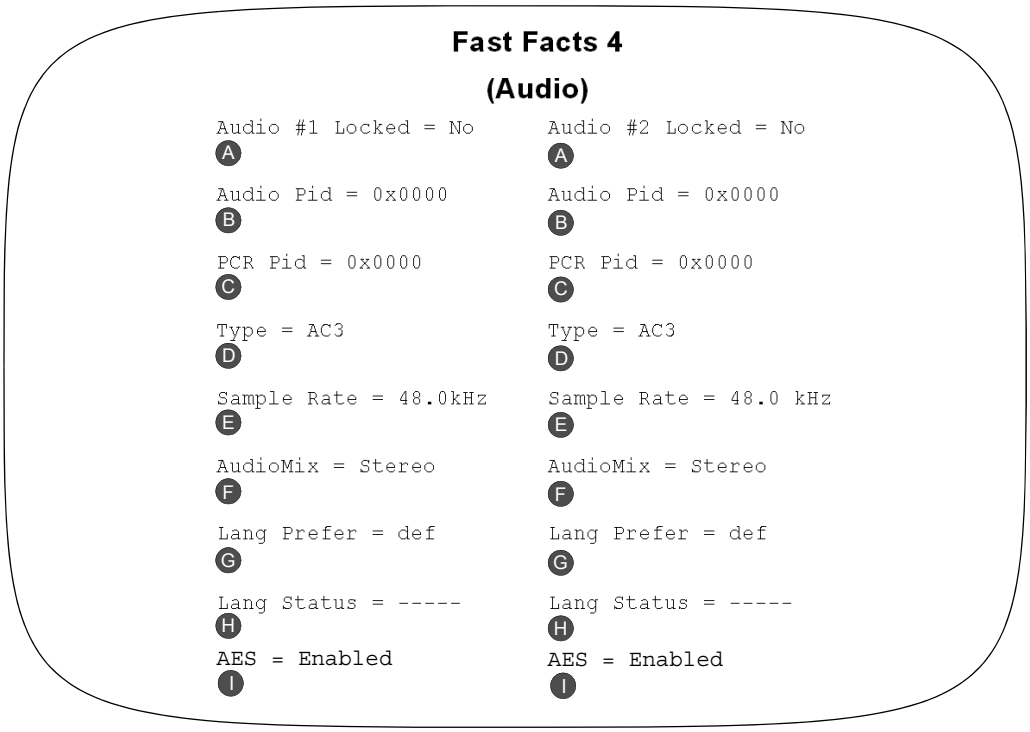


Field	Name	Definition
A	Video Locked	An indication of video lock status, if Yes, then the video for the IRD is being received and locked. If No, then the video is not being received.
B	Monitor	The current output format of the video display.
C	Video PID	The current Program Identification (PID) number for the Video.
D	Window	The current dimensions of the video display: Width x Height, Xpos : Ypos (or mute)
E	PCR Pid	The current Program Clock Reference (PCR) PID.
F	Aspect Mode	The current aspect mode for the incoming video.
G	Source Format	The source format: Interlaced or Progressive.
H	Video Setup	Indication if the video setup (pedestal) is active.

Field	Name	Definition
Ⓘ	Resolution	Displays the Horizontal Size X Vertical Size of the received video.
Ⓙ	Film Mode	Indication of if Film Mode is active or inactive.
Ⓚ	Aspect Ratio	The aspect ratio of the video within the transport stream.
Ⓛ	VMC (Video Mute Control)	The current video mute count.
Ⓜ	Frame Rate	The frame rate code of the stream.
Ⓝ	PTS : FIFO	The video Presentation Time Stamp (PTS) followed by the Picture FIFO Depth Count.
Ⓞ	Chroma Ratio	The Chrominance format for the video within the transport stream.
Ⓟ	Video Rate	The rate (in Mbps) of the video within the transport stream.
Ⓠ	SDI	Indicates whether or not the SDI input is enabled or disabled.

Fast Facts 4

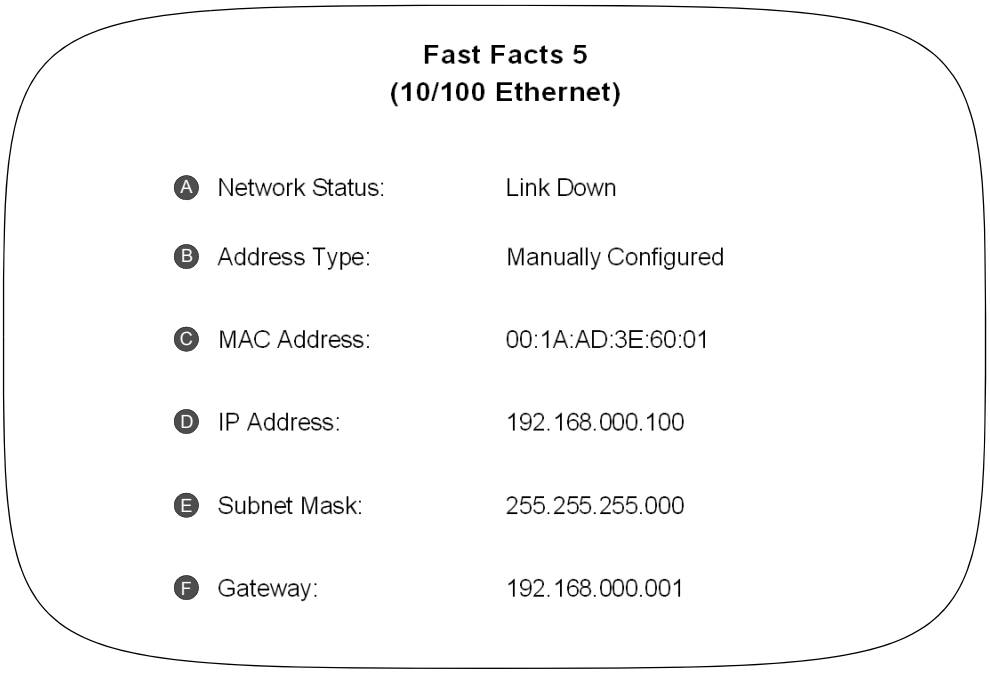
The Fast Facts 4 screen displays information relating to audio information. There are two columns of information displayed, one column for the first audio program, and the other column for the second audio program.



Field	Name	Definition
A	Audio Locked	An indication of audio lock status for both audio programs. If Yes, then the audio for the IRD is being received and locked. If No, then the audio is not being received.
B	Audio Pid	The current Audio PID for both audio programs.
C	PCR Pid	The current PCR PID for both audio programs.
D	Type	The audio stream type: MPEG, AAC, AC3, etc.
E	Sample Rate	The sampling rate (in kHz) of both audio programs.
F	Audio Mix	The audio processing mode for both audio programs: Mono, Stereo, Surround, etc.
G	Language Preference	The preferred language setting for both audio programs.
H	Language Status	The language status for both audio programs.
I	AES Status	Indicates whether or not the AES is enabled for both audio programs.

Fast Facts 5 (10/100 Network)

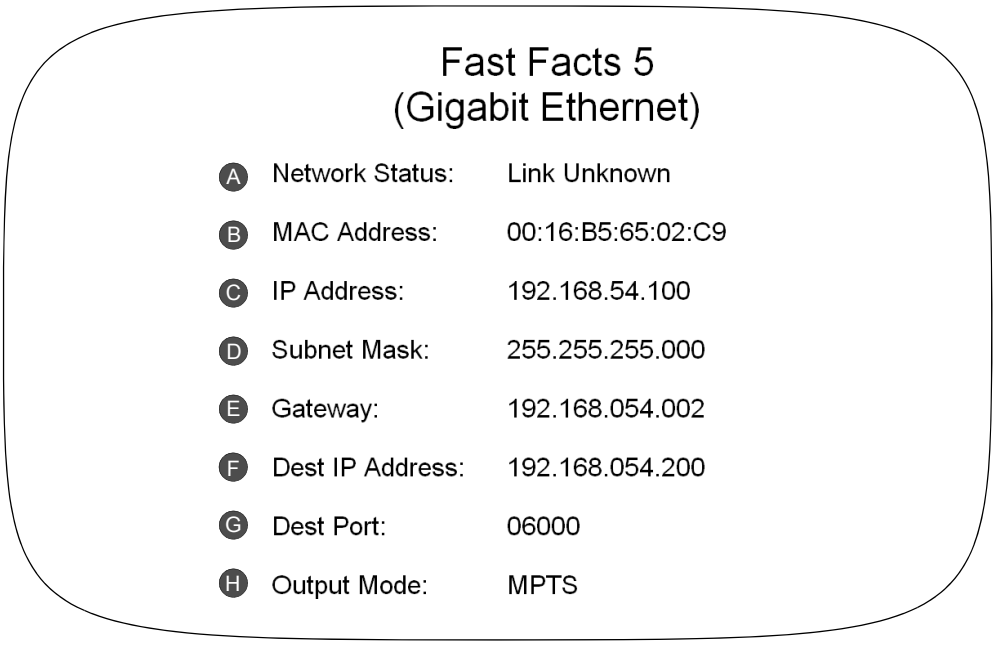
The Fast Facts 5 screen displays information relating to the Ethernet configuration.



Field	Name	Definition
A	Network Status	Provides the status of the 10/100 Ethernet port (e.g., Link Down, Half Duplex, Full Duplex, and Link Unknown).
B	Address Type	The Address Type of the unit.
C	MAC Address	The MAC Address of the unit.
D	IP Address	The IP Address of the unit.
E	Subnet Mask	The Subnet Mask of the unit.
F	Gateway	The Gateway Address of the unit.

Fast Facts 5 (Gigabit Ethernet)

The Fast Facts 5 (Gigabit Ethernet) screen displays information relating to Gigabit Ethernet configuration.



Field	Name	Definition
A	Network Status	Provides the status of the GiGE Ethernet (e.g., Link Down, Half Duplex, Full Duplex, and Link Unknown).
B	MAC Address	MAC Address of the GiGE ethernet.
C	IP Address	IP address of the GiGE ethernet.
D	Subnet Mask	Subnet mask of the GiGE ethernet.
E	Gateway	Gateway of the GiGE ethernet.
F	Dest IP Address	Destination IP address.
G	Dest Port	Destination port.
H	Output Mode	Displays the output mode for the GiGE Ethernet port.

DSR-4550 Specifications

RF	
Input Frequency Range	950 to 2150 MHz
Input RF Level	-25 to -65 dBm
RF Port Impedance	75 Ohms
RF Port Return Loss	8 dB minimum
Port-to-Port Isolation	40 dB minimum

Video (Analog)	
Frequency Response	±0.9 dB (1 kHz to 4.2 MHz) NTSC ±0.9 dB (1 kHz to 4.8 MHz) PAL +0/1.5 dB (4.8 MHz to 5.5 MHz) PAL
Video Level	1.0V p-p ± 10%
Chrominance-Luminance Delay Inequality	±40 nsec
Differential Gain	4.5% p-p maximum (10% to 90% APL)
Differential Phase	4.5% p-p maximum (10% to 90% APL)

Video (SDI)	
Format	SMPTE-259M Standard with embedded audio Channels 1/2 and Channels 3/4
Bit Rate	270 Mbps
Signal Level	800 mV ± 10%
Impedance	75 ohms ± 5%
Output Jitter	740 picoseconds maximum

Transmission Standard	
DCII Symbol Rates	3.25 to 29.27 Msps
DCII Code Rates	5/11, 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, and 7/8

Audio (Analog)	
Output Level	+16.0 dBm ±1.0 dB into 600 Ohms, attenuation adjustable (0 to -15 dB)
Frequency Response	± 1.0 dB, 20 Hz to 20 kHz
Total Harmonic Distortion	1.25 dB pp or better at 1 kHz RE: +10 dBm, 20 Hz to 20 kHz
S/N	85 dB or better at 1 kHz RE: +16 dBm, measured at 20 Hz to 20 kHz
Isolation	80 dB, 1 kHz
Mono Level Balance	≤0.75 dB typical

Note: Audio and data connectors may be ordered through Phoenix Contact part numbers 1840447 / 1840528.

Audio (Digital)	
Format	AES (discrete), AES3, SMPTE-272, and SMPTE-291M (embedded)
Outputs	Right Channel, Left Channel
Signal	AES-3id (discrete), SMPTE-259M (embedded)
Frequency Response	1.3 db p-p max, 20 Hz to 20 kHz
Gain	± 1.0 dB (relative to 0 dB, 16 dBm in and 16.0 dB out @ 1 kHz)
S/N	86.2 dB min. @ 1 kHz referenced to +16.1 dBm encoder input, measure in a 20 Hz to 20 kHz bandwidth with all video outputs terminated.
Lip Sync Delay	± 20 msec for all video inputs

IP Data Rate (DSM-CC)	
IP Data Rate	47.1 Mbps

Electrical	
Power Requirements	AC 100-240V 50/60 Hz 60W
LNB Power Supply	19 to 21 V minimum, 480 mA loaded

Connectors	
RF In	F-type (Qty 8)
AUX Video In	BNC (Qty 1)
Video Out	BNC (Qty 1)

Connectors (Continued)	
OSD Video Out	BNC (Qty 1)
GigE (Ethernet)	RJ45 (Qty 1)
10/100 (Ethernet)	RJ45 (Qty 1)
Alarm	Screw terminal (Qty 1)
Cue Tone (Labeled: Q+ and Q-)	Screw terminal (Qty 1)
AUX Audio In	Screw terminal (Qty 1)
Audio Out (Primary and Secondary)	Screw terminal (Qty 2)
ISOC Data	Screw terminal (Qty 1)
Contact Closure (Labeled: Relay 1, 2, and 3)	Screw terminal (Qty 3)
ASI In	BNC connector (Qty 1)
ASI Out	BNC connector (Qty 1)
SDI Out (Digital Video)	BNC connector (Qty 1)
Digital Audio Out	BNC connector (Qty 2)

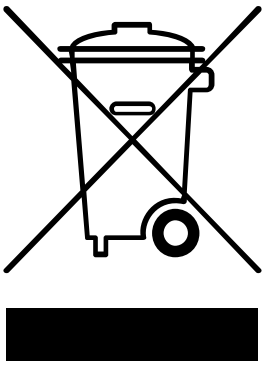
Note: Audio and data connectors may be ordered through Phoenix Contact part numbers 1840447 / 1840528.

Mechanical	
Dimensions	H 3.1" (4.4 cm) W 19.0" (48.3 cm) D 20.50" (52 cm)
Weight	12 lbs.

Caring for the Environment by Recycling

When you see this symbol on a Motorola product, do not dispose of the product with residential or commercial waste.

For full details, see the following link:
www.Motorola.com/recycling



Recycling your Motorola Equipment

Please do not dispose of this product with your residential or commercial waste. Some countries or regions, such as the European Union, have set up systems to collect and recycle electrical and electronic waste items. Contact your local authorities for information about practices established for your region. If collection systems are not available, call Motorola Customer Service for assistance.

Beskyttelse af miljøet med genbrug

Når du ser dette symbol på et Motorola-produkt, må produktet ikke bortskaffes sammen med husholdningsaffald eller erhvervsaffald.

Genbrug af dit Motorola-udstyr

Dette produkt må ikke bortskaffes sammen med husholdningsaffald eller erhvervsaffald. Nogle lande eller områder, f.eks. EU, har oprettet systemer til indsamling og genbrug af elektriske og elektroniske affaldsprodukter. Kontakt de lokale myndigheder for oplysninger om gældende fremgangsmåder i dit område. Hvis der ikke findes tilgængelige indsamlingssystemer, kan du kontakte Motorola Kundeservice.

Umweltschutz durch Recycling

Wenn Sie dieses Zeichen auf einem Produkt von Motorola sehen, entsorgen Sie das Produkt bitte nicht als gewöhnlichen Haus- oder Büromüll.

Recycling bei Geräten von Motorola

Bitte entsorgen Sie dieses Produkt nicht als gewöhnlichen Haus- oder Büromüll. In einigen Ländern und Gebieten, z. B. in der Europäischen Union, wurden Systeme für die Rücknahme und Wiederverwertung von Elektroschrott eingeführt. Erkundigen Sie sich bitte bei Ihrer Stadt- oder Kreisverwaltung nach der geltenden Entsorgungspraxis. Falls bei Ihnen noch kein Abfuhr- oder Rücknahmesystem besteht, wenden Sie sich bitte an den Kundendienst von Motorola.

Cuidar el medio ambiente mediante el reciclaje

Cuando vea este símbolo en un producto Motorola, no lo deseche junto con residuos residenciales o comerciales.

Reciclaje de su equipo Motorola

No deseche este producto junto con sus residuos residenciales o comerciales. Algunos países o regiones, tales como la Unión Europea, han organizado sistemas para recoger y reciclar desechos eléctricos y electrónicos. Comuníquese con las autoridades locales para obtener información acerca de las prácticas vigentes en su región. Si no existen sistemas de recolección disponibles, solicite asistencia llamando el Servicio al Cliente de Motorola.

Recyclage pour le respect de l'environnement

Lorsque vous voyez ce symbole sur un produit Motorola, ne le jetez pas avec vos ordures ménagères ou vos rebuts d'entreprise.

Recyclage de votre équipement Motorola

Veuillez ne pas jeter ce produit avec vos ordures ménagères ou vos rebuts d'entreprise. Certains pays ou certaines régions comme l'Union Européenne ont mis en place des systèmes de collecte et de recyclage des produits électriques et électroniques mis au rebut. Veuillez contacter vos autorités locales pour vous informer des pratiques instaurées dans votre region. Si aucun système de collecte n'est disponible, veuillez appeler le Service clientèle de Motorola qui vous apportera son assistance.

Milieubewust recycleren

Als u dit symbool op een Motorola-product ziet, gooi het dan niet bij het huishoudelijk afval of het bedrijfsafval.

Uw Motorola-materiaal recycleren.

Gooi dit product niet bij het huishoudelijk afval het of bedrijfsafval. In sommige landen of regio's zoals de Europese Unie, zijn er bepaalde systemen om elektrische of elektronische afvalproducten in te zamelen en te recycleren. Neem contact op met de plaatselijke overheid voor informatie over de geldende regels in uw regio. Indien er geen systemen bestaan, neemt u contact op met de klantendienst van Motorola.

Dbałość o środowisko - recykling

Produktów Motorola oznaczonych tym symbolem nie należy wyrzucać do komunalnych pojemników na śmieci.

Recykling posiadanego sprzętu Motorola

Produktu nie należy wyrzucać do komunalnych pojemników na śmieci. W niektórych krajach i regionach, np. w Unii Europejskiej, istnieją systemy zbierania i recyklingu sprzętu elektrycznego i elektronicznego. Informacje o utylizacji tego rodzaju odpadów należy uzyskać od władz lokalnych. Jeśli w danym regionie nie istnieją systemy zbierania odpadów elektrycznych i elektronicznych, informacje o utylizacji należy uzyskać od biura obsługi klienta firmy Motorola (Motorola Customer Service).

Cuidando do meio ambiente através da reciclagem

Quando você ver este símbolo em um produto Motorola, não descarte o produto junto com lixo residencial ou comercial.

Reciclagem do seu equipamento Motorola

Não descarte este produto junto com o lixo residencial ou comercial. Alguns países ou regiões, tais como a União Européia, criaram sistemas para colecionar e reciclar produtos eletro-eletrônicos. Para obter informações sobre as práticas estabelecidas para sua região, entre em contato com as autoridades locais. Se não houver sistemas de coleta disponíveis, entre em contato com o Serviço ao Cliente da Motorola para obter assistência.

Var rädd om miljön genom återvinning

När du ser den här symbolen på en av Motorolas produkter ska du inte kasta produkten tillsammans med det vanliga avfallet.

Återvinning av din Motorola-utrustning

Kasta inte denna produkt tillsammans med det vanliga avfallet. Vissa länder eller regioner, som t.ex. EU, har satt upp ett system för insamling och återvinning av el- och elektronikavfall. Kontakta dina lokala myndigheter för information om vilka regler som gäller i din region. Om det inte finns något insamlingssystem ska du kontakta Motorolas kundtjänst för hjälp.

リサイクルによる環境保護

モトローラ製品にこの記号が表示されている場合、製品を家庭または商業廃棄物として処分しないでください。

モトローラ装置のリサイクル

本製品を家庭または商業廃棄物として処分しないでください。欧州連合などの国または地域によっては、電気的・電子的廃棄物を収集およびリサイクルするシステムがあります。お住まいの地域で決められている方法についての情報は、地方自治体にお問い合わせください。収集システムがない場合、モトローラ・カスタマーサービスまでお問い合わせください。

재활용으로 환경 보호하기

Motorola 제품에 이 표시가 있는 경우, 해당제품을 가정용 또는 상업용 폐기물과 함께 버리지 마십시오.

Motorola 기기의 재활용

이 제품을 가정용 또는 사업용 폐기물과 함께 버리지 마십시오.유럽연합과 같은 일부 국가 또는 지역에서는 전기 및 전자 폐기물 용품을 수집하여 재활용하는 시스템이 구축되어 있습니다.해당지역에 구축되어 있는 절차에 관한 정보는 지역 관할당국에 연락하십시오.수집 시스템이 존재하지 않는 경우, 도움을 받기 위해 Motorola 고객서비스부로 연락하십시오.

重复利用，保护环境

如果 Motorola 产品上具有这个标识，请勿将产品丢弃到家庭或商业垃圾中。

Motorola 设备的重复利用

请勿将本产品丢弃到家庭或商业垃圾中。某些国家或地区，例如欧盟，已经建立起回收和重复利用电气与电子废弃物的体系。请与当地相关机构联系，获取有关所在地区相关规定的信息。如果当地尚未建立回收体系，请致电 Motorola 客户服务以寻求帮助。

注意環保問題

在你看到產品上有Motorola的標誌時，請勿以住家或商用的廢棄物方式處置。

Motorola 設備的回收

請勿以住家或商用的廢棄物方式處置。某些國家或地區，如歐盟，已對廢棄的電器和電子產品制訂回收以及再利用體制。請與您所在地的管理機構諮詢相關規定。

若您所在的地區並未設置回收機制，請電Motorola客服部諮詢相關事宜。

MOTOROLA

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